

AD-A127 936

PATOKA LAKE FOUNDATION REPORT BOOK 4 APPENDIX D  
CONTRACTOR DRILL LOGS(U) ARMY ENGINEER DISTRICT  
LOUISVILLE KY S BARTLETT ET AL. APR 83

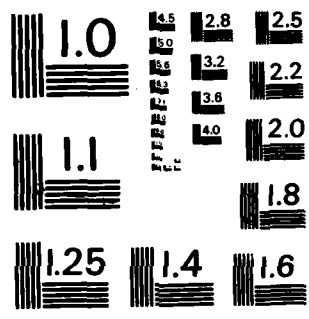
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MICROCOPY RESOLUTION TEST CHART  
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AD A 127936

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BOOK 4 of 5  
PATOKA LAKE FOUNDATION REPORT  
APPENDIX D  
CONTRACTOR DRILL LOGS

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18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)  Dam Patoka River Indiana		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)  This report covers the construction of the Patoka Dam, Spillway and Dike. Patoka is a flood control structure on the Patoka River, a tributary of the Wabash River in Southwestern Indiana. It is in the flood control structures for the Ohio River Basin. The report contains narratives, charts, photos and construction logs.		

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#### APPENDIX D

#### CONTRACTOR'S DRILL LOGS TO PATOKA LAKE FOUNDATION REPORT

#### INDEX SHEET

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## CONTRACTOR'S DRILL LOGS TO PATOKA LAKE FOUNDATION REPORT

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CONTIN. NO. 1410-27-1-1-0000

NO. 1410-27-1

<b>DRILLING LOG</b>		<b>INSTALLATION</b>	
DIVISION		SHEET 1 OF 6 SHEETS	
1. PROJECT PACIFIC LANE		10. SIZE AND TYPE OF BIT 1 1/2" DIA. 1 1/2" LONG	
2. LOCATION (Coordinates or Station) STA. 181+34, 8 FT. RT. DIKE AREA		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY C. P. 65		12. MANUFACTURER'S DESIGNATION OF DRILL	
4. HOLE NO. (As shown on drawing title and file number) GCH-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED UNDISTURBED	
5. NAME OF DRILLER D. J. JENSEN		14. TOTAL NUMBER CORE BOXES 3	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEG. FROM VERT.		15. ELEVATION GROUND WATER 16	
7. THICKNESS OF OVERBURDEN 0.15		16. DATE HOLE STARTED 9/23/75 COMPLETED 9/26/75	
8. DEPTH DRILLED INTO ROCK 50.5		17. ELEVATION TOP OF HOLE 580.0	
9. TOTAL DEPTH OF HOLE 50.6		18. TOTAL CORE RECOVERY FOR BORING 50.0	
		19. SIGNATURE OF INSPECTOR J. C. JENSEN	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
580.0	0.0					
	1.0					
	2.0					
	3.0					
	4.0					
	5.0					
	6.0					
572.95	7.0		TOP 1			
	8.0					
	9.0					
571.85	10.0		Start Coring 0.15			
	11.0		11.0 77.7			
	12.0		12.0 0.0		Box 1	
	13.0		13.0 91.6			
	14.0					
	15.0					
	16.0					
	17.0					
	18.0					
	19.0					
	20.0					
	21.0					
	22.0					
	23.0					
	24.0					
	25.0					
	26.0					
	27.0					
	28.0					
	29.0					
	30.0					
	31.0					
	32.0					
	33.0					
	34.0					
	35.0					
	36.0					
	37.0					
	38.0					
	39.0					
	40.0					
	41.0					
	42.0					
	43.0					
	44.0					
	45.0					
	46.0					
	47.0					
	48.0					
	49.0					
	50.0					
	50.6					

NOTE: HOLES  
GCH-1 THR.  
GCH-7 Drilled  
prior to cat  
off excavation  
of dike from  
station 1+76  
to 8+00

ENG FOR 1836  
MAR 71

PREVIOUS EDITIONS ARE OBSOLETE

(TRANSMITTENT)

PROJECT

PACIFIC LANE

D-1

HOLE NO.

GCH-1

DRILLING LOG		DIVISION		INSTALLATION		SHEET 2 OF 6 SHEETS	
1. PROJECT Pata Lata				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) GCH 41				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED UNDISTURBED			
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE MOLE STARTED COMPLETED			
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF MOLE			
9. TOTAL DEPTH OF MOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
			1. 10' closed 27" near core edge, angle can't be seen @ bot 0.1 FT 2 core loss core badly broken & reduced 16 core spin, open B/P 2 in. H.A. iron frags. across core, partial core missing iron hatchly frac, very, partial core missing open B/P, core reduced rounded B/P open B/P core badly broken & reduced 0.9 FT 2 core loss 13.0 core rounded w/hatchly frac on edges 16 core spin w/frac on edges core SL reduced, 2.5" from marks on core edges core spin hatchly frac on core edge hatchly open frac, diagonally across core core spin core v. badly broken & reduced, one piece has hatchly frac on all sides. 1.35 FT 2 core loss 12.0 core spin open B/P, possible core spin, 16 trace of grout core reduced 0.1 FT 2 core loss powdery sand on top of core, w/several hatchly frac on top edge of core open B/P 16 core spin, iron hatchly break along B/P, possible core loss 16 core spin, trace of grout 17.0 core spin, core banded, possible core loss core spin, possible core loss 18.0 16 core spin core SL reduced grout trace along B/P open B/P grout trace along B/P 16 core spin iron break along B/P w/grout trace, several grout traces along B/P in this area core spin hatchly frac 0.1 FT 2 core loss hatchly frac on each edge, grout traces core spin break along iron B/P w/grout iron H.A. break across core, smoothed zone of 0.5 FT 2 core loss, core badly broken, washed & reduced, some traces of grout 19.0 16 open thin H.A. frac across core 16 core spin core spin w/grout trace iron open B/P w/grout core washed, iron break along 3rd, from grout fracture along B/P hatchly frac on core edge	56.1		Rec 0.6 Lost 0.2 Lost 0.05 0.10 0.25 CD 10.15 EL 36.25 Run #4 Drill 5.3 Rec 3.05 Left 0.15 Lost 2.355 CD 15.5 EL 36.75 Run #5 Drill 5.1 Rec 3.6 Left 0.7 Lost 0.75	
			core spin, core banded, possible core loss core spin, possible core loss 16 core spin core SL reduced grout trace along B/P open B/P grout trace along B/P 16 core spin iron break along B/P w/grout trace, several grout traces along B/P in this area core spin hatchly frac 0.1 FT 2 core loss hatchly frac on each edge, grout traces core spin break along iron B/P w/grout iron H.A. break across core, smoothed zone of 0.5 FT 2 core loss, core badly broken, washed & reduced, some traces of grout 19.0 16 open thin H.A. frac across core 16 core spin core spin w/grout trace iron open B/P w/grout core washed, iron break along 3rd, from grout fracture along B/P hatchly frac on core edge	83.5			

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(TRANSLUCENT)

PROJECT Pata Lata D-2 HOLE NO. GCH 41



<b>DRILLING LOG</b>		<b>DIVISION</b>	<b>INSTALLATION</b>	<b>SHEET 4</b> OF 6 SHEETS
1. PROJECT <i>Patoka Lake</i>		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <i>GCH #1</i>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED	UNDISTURBED
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DES. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE	STARTED	COMPLETED
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of measuring, etc., if significant) g
			100' broken along 8/15; partial core missing; grout traces core badly broken & fine; zone of 0.55 ft core loss clay, transition from fine, grout trace			CD 30.3
			LA open 8/15 General HA, open 9/5, partial core missing open 8/15 open 8/15 open 8/15 core 8/15 General open 8/15 - 9/5, fine 8/15, core reduced			DD 31.05 Run # 8 Drill 5.5 Rec 5.15 ✓ Lost 0.0 Lost 1.1
			core 8/15 open 8/15, grout trace, core 8/15 core reduced, 0.35 ft core loss bad core 8/15, core banded HA, open 9/5, grout trace, partial core core 8/15 HA, partial open 9/5 core 8/15, grout trace	82.4		
			open 8/15 open 8/15, grout trace, LA core 8/15, possible core loss, core banded core 8/15, possible core loss core 8/15, grout trace HA open 9/5, grout trace core 8/15 core 8/15 open 8/15, core 8/15, partial broken open 8/15, core 8/15 open 8/15, core 8/15, grout trace open 8/15, core 8/15, grout trace, core banded, possible core loss open 8/15 open 8/15, core 8/15, grout trace open 8/15, grout trace, core banded open 8/15, grout trace LA open 9/5, grout trace core 8/15, 0.2 ft core loss LA open 9/5, grout trace, partial core missing; core edges fractured open 8/15, grout trace, LA core 8/15 core 8/15, grout trace, HA 8/15			Lost 30 36.55 ft
			open 8/15 - HA clay filled 9/5; partial core missing; 8/15 core clay; 9/5 dark reddish brown fat clay, etc.			DD & D 36.55 Run # 9 Drill 3.3 Rec 1.55 Lost 0.4 Lost 1.35
			1.35 ft core loss	53.4		
			100' horiz pling, grout trace 100' core 8/15 due to drilling 8/15 core 8/15			18.55
			open 8/15 open 8/15 core 8/15			Box 3 2-2 9/12/75
						CD 39.95

ENG FORM  
MAR 71

REVISION  
100% ARE OBSOLETE  
REPLACEMENT

PROJECT  
*Patoka Lake*  
D-9  
HOLE NO  
*GCH #1*



DRILLING LOG		DIVISION	INSTALLATION	SHEET 5 OF 6 SHEETS		
1. PROJECT <i>Patoka Lake</i>		10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
2. LOCATION (Coordinates or Station)		12. MANUFACTURER'S DESIGNATION OF DRILL		13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		
3. DRILLING AGENCY		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		
4. HOLE NO. (As shown on drawing title and file number)		16. DATE HOLE		17. ELEVATION TOP OF HOLE		
5. NAME OF DRILLER		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		19. SIGNATURE OF INSPECTOR				
7. THICKNESS OF OVERBURDEN		19. SIGNATURE OF INSPECTOR				
8. DEPTH DRILLED INTO ROCK		19. SIGNATURE OF INSPECTOR				
9. TOTAL DEPTH OF HOLE		19. SIGNATURE OF INSPECTOR				
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	41		5.2 FT core loss due to drilling methods	0.0		Run # 10 drill 4.9 Rec 0.0 Left 0.1 Lost 5.2
	42					hole caved in to 20 ft over night; no water.
	43					No core recovery, due possibly to caved hole; broke drill rod on well; no water return; casing drilled off 2 rods violating respectively at the casing was not a break
	44					20 40 75
	45					Run # 11 drill 5.6 Rec 2.0 Left 0.0 Lost 5.7
	46					Same drill manifest as during run # 10.
	47		5.7 FT core loss due to drilling methods.	0.0		End Run 12 11 12 When running next rod down the hole the top would catch on small irregularities near the bottom of each run, some times stopping down 10-15 ft. In fact in even one run of 100 ft to one side.

DRILLING LOG		DIVISION		INSTALLATION		HOLE NO. GCH #1	
1. PROJECT		2. LOCATION (Coordinates or Station)		3. DRILLING AGENCY		4. HOLE NO. (As shown on drawing title and file number)	
5. HOLE NO. (As shown on drawing title and file number)		6. DIRECTION OF HOLE		7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF HOLE		10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		12. MANUFACTURER'S DESIGNATION OF DRILL	
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		16. DATE HOLE	
17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR		20. SIGNATURE OF INSPECTOR	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
						55.60 55.75	
						Run # 12	
						drill 5.6	
						rec 0.0	
						left 0.35	
						Loss 5.9	
			5.9 FT core Loss			Camp drill man	
			due to drilling methods	0.0		no down run #12.	
						portions of run #12.	
						same as run #12.	
55.75			0.35 FT core left in hole			55.75	
						55.60	

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(TRANSLUCENT)

PROJECT D-6 HOLE NO. GCH #1  
Patoka Lake

DRILLING LOG		DIVISION	INSTALLATION		SHEET / OF 5 SHEETS	
1. PROJECT			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES	
5. NAME OF DRILLER			15. ELEVATION GROUND WATER		16. DATE HOLE	
6. DIRECTION OF HOLE			17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
7. THICKNESS OF OVERBURDEN			19. SIGNATURE OF INSPECTOR			
8. DEPTH DRILLED INTO ROCK						
9. TOTAL DEPTH OF HOLE						
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS
a	b	c	d	e	f	g
	20.0					
	21.0					
	22.0					
	23.0					
	24.0					
	25.0					
	26.0					
	27.0					
	28.0					
	29.0					
30.3						
		SS				

DRILLING LOG		DIVISION	INSTALLATION	Hole No.	
				SHEET	OF SHEETS
1. PROJECT			10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION BROWN (TBM or BSL)		
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number)			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING		
			19. SIGNATURE OF INSPECTOR		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
528.4	31		Start Coring			31.4
			Core rounded			Run #1
			0.1 ft ± core loss			Drill 5.05
			Core spin, core revealed			Rec 3.05
			Open B/ps			Left 0.65
			LA open 2/ps			Lost 1.35
			Core broken; revealed 1/2			
			Core missing			
			0.1 ft ± core loss			
			Core broken edges; col			
			is reduced			
			Core spin 0.1 ft ± core loss			
			Open 4/ps			
			Core broken - core spin			
			0.3 ft ± core loss			
			Open B/ps, fine on edges			
			Core spin			
			0.1 ft ± core loss			
			Core reduced, fine on edge			
			0.2 ft ± core loss			
			LA spin; clay lined			
			Open 2/ps			
			Core open, clay, filled gr.			
			Core spin			
			0.1 ft ± core loss			
			Open 2/ps			
			M.A. clay, filled gr in			
			Core edge			
			Core broken			
			Core spin			
			0.2 ft ± core loss			
			Open M.A. clay, filled			
			gr. on core edge			
			Core spin			
			Core clay, filled vert line on core			
			0.05 ft ± core loss			
			Core broken, core broken,			
			Core spin			
			2 vert, open clay, filled faces			
			Clay spin			
			M.A. open, clay, lined gr.			
			Core spin			
			Core missing			
			LT brown - brown, weathered,			
			with 2-3% sandstone; from			
			1.5 ft gravel, sandstone,			
			soft mud, etc.; rec. M.A. gr.			
			0.2 ft ± core loss			

ENG FORM 1836  
MAR 71

PREVIOUS EDITIONS ARE OBSOLETE  
(TRANSILICENT)

PROJECT

P. 100 L. 10

D-8

SOLE NO.



ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE  
MAR 71  
(TRANSLUCENT)

PROJECT

D-10

[illegible]

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE.  
MAR 71

D-1,

HOLE NO	
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DRILLING LOG		DIVIS <sup>n</sup>	INSTALLATION	Hole No. (2011-2)	SHEET 1 OF 2 SHEETS	
1. PROJECT <i>Pitaka Lake</i>		<i>RD</i>	10. SIZE AND TYPE OF BIT <i>4" 5000 Series</i>			
2. LOCATION (Coordinates or Station) <i>2.5' 15' E DIKE STATION 102+42</i>			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) <i>MSL</i>			
3. DRILLING AGENCY <i>Dept. of Fisheries</i>			12. MANUFACTURER'S DESIGNATION OF DRILL <i>Mobile</i>			
4. HOLE NO. (As shown on logging title and file number)			13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN <i>Disturbed</i> <input checked="" type="checkbox"/> <i>Undisturbed</i> <input type="checkbox"/>			
5. NAME OF DRILLER <i>Edward Tully</i>			14. TOTAL NUMBER CORE BOXES <i>2</i>			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER <i>Not determined</i>			
7. THICKNESS OF OVERBURDEN <i>24.0'</i>			16. DATE HOLE <i>3 Aug 70</i> <input checked="" type="checkbox"/> STARTED <input type="checkbox"/> COMPLETED			
8. DEPTH DRILLED INTO ROCK <i>27.3'</i>			17. ELEVATION TOP OF HOLE <i>561.1</i>			
9. TOTAL DEPTH OF HOLE <i>71.3'</i>			18. TOTAL CORE RECOVERY FOR BORING <i>52</i>			
			19. SIGNATURE OF INSPECTOR <i>Frank A. Christman Geologist</i>			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of monitoring, etc., if significant)
561.1	0.0		Overburden			Drive samples obtained with 3' spoon drive with 3.526 hammer 30" drop.
	5.0		Sandy Clay lt. br; sh. damp.			
	10.0					
	15.0					
	20.0					
536.7	24.4					Auger appears to hit S.S. at 24.0 as determined by the difficulty of advancing hollow tube. Corlett in hole @ 536.7 during remainder of drilling.
536.5	24.8		Sandstone frag. m. wd; yellowish br; soft; very porous			Top of firm rock
		S.S.				
531.8	29.3		1/4" rd-gr cl. ss @ 530.3			
530.8	30.3		hi. wd. with red stiff clay. 531.8 to 530.8			Sample #2 appears to be homogeneous S.S. with red clay infilling
529.1	31.0		1/4" bd. p's 530.8 to 529.1 max core length 0.2'			Core 4.9' loss 4.8' to core loss 0.1' 530.0 to 529.1
			bdng p's 528.9, 528.4 low 4' frac 528.3 to 528.2			
525.2	35.6		bdng p's 528.1 528.0 solid core 528.0 to 526.5			
	35.7		1/8" cl. co. bdng p's 526.5			
522.7	38.7		reddish-gray fat clay 525.2 to 525.1			Core 6.4' sand loss 5.5' from 525.2 to 522.7
521.5	39.9		bdng p's 524.1, 524.6, 524.4, 524.3, 524.0, 523.9			
		S.S.	523.7, 523.2			
518.8	42.8		hi. wd. brg. 523.1 to 522.7			
	42.9		bdng p's 521.5, 521.2			Some caving occurred when coring p's 521.5 to 521.2
	43.0		loss area 1355.0 to 43.0			42.3 to 42.0
514.8	46.8		1/4" rd-gr br. 521.5 to 518.8			Due to difference in 1/4" rd-gr br. 518.8 to 514.8
	46.9		bdng p's 520.9 to 520.7			
512.3	49.3		Reddish-brown clay			
512.3	49.3		Reddish-brown clay			



DRILLING LOG		DIVISION	INSTALLATION	SHEET		
1. PROJECT <i>Patoka Lake</i>		<i>2-1-CD</i>	<i>Lanark by District</i>	OF 2 SHEETS		
2. LOCATION (Coordinates or Station) <i>E.S. 15 2 DIKE STATION 10242</i>		10. SIZE AND TYPE OF BIT <i>4 x 1 1/2 IN</i>				
3. DRILLING AGENCY		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)				
4. HOLE NO. (As shown on drawing title and file number)		12. MANUFACTURER'S DESIGNATION OF DRILL <i>Mobile</i>				
5. NAME OF DRILLER		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED <input checked="" type="checkbox"/> UNDISTURBED <input type="checkbox"/>				
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		14. TOTAL NUMBER CORE BOXES				
7. THICKNESS OF OVERBURDEN		15. ELEVATION GROUND WATER				
8. DEPTH DRILLED INTO ROCK		16. DATE HOLE STARTED <i>Aug 3 1976</i> COMPLETED <i>Aug 4 1976</i>				
9. TOTAL DEPTH OF HOLE		17. ELEVATION TOP OF HOLE <i>511.1</i>				
		18. TOTAL CORE RECOVERY FOR BORING <i>71%</i>				
		19. SIGNATURE OF INSPECTOR <i>John A. Chittman</i>				
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
<i>511.1</i>	<i>59.0</i>	<i>LS</i>	<i>Sand s.g.; rd. br sli. coh. 513.1 to 512.8 sand clay rd. br. to dr. br. 512.8 to 512.5</i>	<i>100%</i>	<i>Box 1</i>	<i>Cut 5.0' top of Box 1 5.0' Glen Dear Loss 0.0' to 512.5</i>
<i>508.9</i>	<i>52.2</i>		<i>Limestone lt. gr. h.; lt. gr. sty. brn 513.3 to 513.2 solid core 513.4 to 511.9 bding pa 511.9 mech bk @ 511.1, 511.0 solid core 511.9 to 509.2 bding pa open @ 509.0 low 2 bding pa open 507.8 to 507.7 sty. pa 506.7 mech bk @ 505.8, 505.3 sty pa @ 505.1, 504.1, 501.9, 499.3, 498.4</i>	<i>100%</i>	<i>Box 2</i>	<i>Cut 5.0' Feed 5.0'</i>
<i>495.1</i>	<i>65.0</i>			<i>97%</i>	<i>Box 3</i>	<i>Cut 3.4' Loss 0.2 Feed 3.3' to closed Loss 0.1' barrel Blocked off Loss shale to bottom Blocked off 5' core spins within 10 min. mech. loss Cut 3.0' Loss 1.2</i>
<i>494.1</i>	<i>67.0</i>	<i>SH</i>	<i>Shale, silty, bl. gr. m.h. (crumbly). d. bd.</i>	<i>85%</i>		
<i>492.8</i>	<i>68.3</i>			<i>60%</i>		
<i>489.8</i>	<i>71.3</i>		<i>Bottom of Hole</i>			<i>Drill crew only had fine diamond bits and small water ways unsuitable for drilling shale. Prior to pulling Augers plastic pipe installed into hole to bottom and hole was grouted to top of auger with 3 bags cement 3 bags sand 1 bag fly Ash 3 Cu. ft water. Then auger pulled but hole grouted to within 5' of surface.</i>
			<i>Due to the losses in this hole a replacement hole to sample lost material was initiated. See GCH-3A</i>			

Hole No. GPH-32

DRILLING LOG		DIVISION	INSTALLATION		SHEET	
1. PROJECT			10. SIZE AND TYPE OF BIT		OF SHEETS	
2. LOCATION (Coordinates or Station)			11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN			
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE			
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
561.4	0.0					
	5.0	OUB	Sandy Clay H. br. slipy; into as determined from augering			Used 3' spoon using 350 lb hammer and 30" drop.
	10.0					Augered firm S.S. and spool sampled soft areas.
	15.0					
	20.0					
537.4	24.0		Top of Highly Wd. Rock	0%		
	25.0	m. to h. wd. S.S.	Sandstone soft, m. wd. to h. wd. rd. br. f.c.; very porous			
	30.0					
529.4	32.4					
528.3	33.7		Encounter water @ 528.3 S.S.			
527.0	34.2	CL	Sandy clay rd. br. / wd. s.s. fine S.S.			
526.7	35.7	S.S.				
524.4	38.0	SM	Sand v. f.g. H. br. / loose			
523.2	39.2	S.S.				
	40.0					
518.3	45.7	SM	Sand v. f.g. H. br. / rd. br. / loose			
517.9	46.1	SM	Sand v. f.g. H. br. / rd. br. / loose			
516.3	47.7	SM	Sand v. f.g. H. br. / rd. br. / loose			
515.8	48.2	SM	Sand v. f.g. H. br. / rd. br. / loose			
514.4	49.6	SM	Sand v. f.g. H. br. / rd. br. / loose			
513.9	50.1	SM	Sand v. f.g. H. br. / rd. br. / loose			
512.4	51.6	CL	Sandy clay rd. br. / wd. s.s. fine S.S.			
511.7	52.3	CL	Sandy clay rd. br. / wd. s.s. fine S.S.			

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PROJECT H-14 HOLE NO. 32

Hole No. 5CH 4

DRILLING LOG		DIVISION		INSTALLATION		SHEET 1 OF 11 SHEETS	
1. PROJECT Patterson Lake		ORD		Location in District 6000 ft. to District			
2. LOCATION (Coordinates or Station) 10° 15' 35" N 107° 12' 17" W				10. SIZE AND TYPE OF BIT 6" Dia. - 1 cut			
3. DRILLING AGENCY Continental Drilling Co.				11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL			
4. HOLE NO. (As shown on drawing title and file number) 6CH #4				12. MANUFACTURER'S DESIGNATION OF DRILL Mab. Lp. B-61			
5. NAME OF DRILLER J. D. King				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				14. TOTAL NUMBER CORE BOXES 22			
7. THICKNESS OF OVERBURDEN 9.0 ft				15. ELEVATION GROUND WATER 527.3			
8. DEPTH DRILLED INTO ROCK 97.7				16. DATE HOLE STARTED 11/22/76 COMPLETED 2/22/77			
9. TOTAL DEPTH OF HOLE 106.7				17. ELEVATION TOP OF HOLE 592.3			
				18. TOTAL CORE RECOVERY FOR BORING 99.5			
				19. SIGNATURE OF INSPECTOR J. D. King			
ELEVATION ft.	DEPTH ft.	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
	0.0					Drilled thru OB and set 10.7 ft of 8 inch 11/22/76	
	1.0						
	2.0					w/L 3/4/77: 71.0 = 527.0 EL	
	3.0						
	4.0						
	5.0						
	6.0						
	7.0						
	8.0						
	9.0						
589.0	9.0	SS	Start Coring - 9.0 ft - hollow rock 6.77 marks				
			- open 8/12, ripple marks carbonaceous clays	100%			
	10.0		- open 8/12, ripple marks				

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT

Patterson Lake

D-15

HOLE NO.

6CH 4

Hole No. **GCH #4**

DRILLING LOG		DIVISION	INSTALLATION	SHEET 2 OF 11 SHEETS
1. PROJECT <b>PaToka Lake</b>		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinate or Station)		11. DAYTIME FOR ELEVATION SHOWN (YEN or MSL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <b>GCH #4</b>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE STARTED _____ COMPLETED _____		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION SFP.0	DEPTH 10.0	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVER- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			SS seam			Run #1
			Rust brn - buff; v. fine grain; poorly cemented; most Md; thin bed.		Box 1	Drill 3.4 Rec 3.3 Left 0.1 Lost 0.0
	11		V. thin gravel trace			
			HA, irr frag on core edge			
			open B/p; smeared w/ cuttings			
	12		sl irr open B/p			EL 585.7 CO 12.3
			open B/p			DD 12.4
			closed horiz frag 1/2 across core			
	13		open B/p		12.95 585.05	Run #2
						Drill 5.05 Rec 5.05 Left 0.1 Lost 0.0
	14		Brown; occ carbon traces (lenticular), run #2	100%	Box 2	
	15					
	16		sl irr open B/p			
	17					EL 580.65 CO 17.35
					17.35 580.65	DD 17.45
	18					Run #3
					Box 3	Drill 5.15 Rec 5.15 Left 0.0 Lost 0.0
	19		open B/p, sl irr	100%		
			broken ss bed			
			num. discontinuous soft (w) shale 2'-3" to 10.7-19.75			
			soft B/p, mud cuttings, broken gravel trace			
	20					

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PROJECT **D-76** HOLE NO. \_\_\_\_\_

Hole No. GCH #4

DRILLING LOG		DIVISION	INSTALLATION	SHEET <u>2</u> OF 11 SHEETS
1. PROJECT <u>Patocha Lake</u>		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or BBL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <u>GCH #4</u>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION 578.0	DEPTH 22.0	LEGEND e	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			open B/P; soft			
			badly broken, thin lenticular sh seams			
			num thin discontinuous sh lenses, (w); soft; 20.0-22.5			
	21		EL 578.0-576.5			
			open highly irr B/P; ripple marks			
			open irr B/P, ripple marks; sh traces			SL DWL @ end of run #3
			broken			
	22		broken & highly frac, several v. thin sh seams along faces		22.05	
			broken when removing from bbl		575.95	ML @ 575.5
			num v. thin soft sh lenses, discontinuous			DDTCD 22.5 EL 575.5
	23		badly broken along B/P sh faces			Run #4
			v. thin (w) sh lam		Box 4	Drill 5.25
			LA open frac across core			Rec 5.12
	24		num L.A. iron stainers; Bdg seams; SL honeycombed core edges w/ small vugs	100%		Left 0.15
						Lost 0.0
	25		SL irr open B/P			
	26		buff below 26.7 ft; EL 571.3		25.95	
					572.05	
	27					
	28		edges broken when removing from bbl.		Box 5	
						DD 27.75
	29		buff			50
						EL 571.3
	30					

Hole No. GCH #4

DRILLING LOG		DIVISION	INSTALLATION	SHEET 4 OF 11 SHEETS
1. PROJECT <b>Patoka Lake</b>		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinate or Station)		11. DATUM FOR ELEVATION SHOWN (FBN or RSL)		
3. DRILLING AGENCY		12. MANUFACTURE'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and site number)		13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE <input type="checkbox"/> STARTED <input type="checkbox"/> COMPLETED		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION 568.0	DEPTH 32.0	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of overburden, etc., if significant) g
			irr open B/p, ripple marks			Run #5
			31.7-32.25; num v. thin soft sh lenses; discontinuous		Box 6	Drill 4.95 Rec 5.1 Left 0.0 Lost 0.0
			irr open B/p, ripple marks			
			badly broken, num v. thin, soft, (w) sh lenses			
			broken when removing from bbl			DD & CD 32.7 EL 565.3
			open B/p, irr			Run #6
			irr, B/p; occ carb traces			Drill 5.1 Rec 5.0 Left 0.1 Lost 0.0
			sl irr open B/p			
			sl irr open B/p, sl carb	100%	34.55 563.45	
			num v. thin sh lam & lenses, 32.2- 32.7; EL 564.2- 560.3		Box 7	
			open irr B/p			
			2 open B/p's			
			concentration of num v. thin discontinuous, (w) sh lenses			
			sl irr open B/p's			
			Rust con, stained, irr concretion on core edge			EL 560.3 CD 37.7
			open B/p			
			broken when removing from bbl.			DD 37.8
			open B/p			
			open B/p		38.25 564.75	
			black staining on LA B/p's			
			open sl irr B/p, carb traces	100%		
			Open vert gr. near core edge, faint grain trace @ Top			

DRILLING LOG		DIVISION		INSTALLATION		Hole No. <i>GCH #4</i>	
						SHEET <i>5</i> OF <i>11</i> SHEETS	
1. PROJECT <i>Pataka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and site number) <i>GCH #4</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE		16. DATE HOLE	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE		17. ELEVATION TOP OF HOLE	
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING		18. TOTAL CORE RECOVERY FOR BORING	
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR		19. SIGNATURE OF INSPECTOR	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
558.0	40.0		open S/p			Run #7
			open S/p		Box 8	Drill 5.0
			Thin soft zone, highly (u) SH seams; num plant frags			Rec 5.0
	41		open SL irr S/p; w/ v. thin clay seam, ripple marks			Left 0.1
			closed HA frac near core edge			Lost 0.0
			open S/p			
	42		Black etc. no LA B dng; 39.9-40.3 EL 558.1-557.7			EL 555.3
			open S/p ripple marks			CD 42.8
			frac when removing from ccl.		42.9	42.7
	43		open S/p		555.1	
			frac & broken			
			SL stained open S/p; SL irr			Run #8
	44		open, SL irr, S/p		Box 9	Drill 5.0
			44.7-47.5; num v. thin, dk grey; v. soft clay seams; approx 100% at ft apart; sec closed			Rec 5.0
	45		open, SL irr, S/p			Left 0.1
			9TS between seams; EL 558.3-550.5			Lost 0.0
			open S/p			
	46		HA frac on core edge.			WL 11.8, end of shift 2/15
			open S/p, ripple marks			
			HA closed 9T on core edge			
	47		open S/p			
			open S/p			EL 550.3
			open S/p		47.7	CD 47.7
			LA open frac		550.3	550.3
	48		Several HA frags near core edge; one open			
			open SL irr S/p			
			LA, irr, washed in thin seam			
			Tight hairline frac on core edge		Box 10	
	49		open S/p			
			zone of several vert 9TS or frags causing core to break in irr pieces			
			zone of num, brn, soft, sh frags; (u); broken & soft on top			
			near vert 9T, causing core to break, calc. to 176.5 in			

DRILLING LOG		DIVISION		INSTALLATION		Hole No. GCH #4	
1. PROJECT Patoka Lake		2. LOCATION (Coordinates or Station)		10. SIZE AND TYPE OF BIT		SHEET 6 OF 11 SHEETS	
3. DRILLING AGENCY		4. HOLE NO. (As shown on drawing title and file number)		11. DAY USE FOR ELEVATION SHOWN (TBM or BELL)		12. MANUFACTURER'S DESIGNATION OF DRILL	
5. NAME OF DRILLER		6. HOLE NO. (As shown on drawing title and file number)		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES	
7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK		15. ELEVATION GROUND WATER		16. DATE HOLE	
9. TOTAL DEPTH OF HOLE		10. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
				19. SIGNATURE OF INSPECTOR			
ELEVATION 548.0	DEPTH 50.0	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			open sl irr B/p			Run #9	
			small Fe stone concretions on core edge			Drill 5.0	
			zone w/ num. v. thin, (w), sh lenses, soft			Rec 5.1	
			open B/p			Left 0.0	
	51		irr Hd, Fe stained, well cemented ss zone, irr shape	100%	Box 10	Lost 0.0	
			open B/p			Hole dry in A.M. when starting.	
	52		small vug on core edge			w.L. 14.3 end run #9	
			open B/p			52.55	
			broken in part when removing from bbl			545.45	
	53		irr open B/p; ripple marks			DDED 52.8; EL 545.2	
			mottled Blk, Fe staining		Box 11	Run #10	
	54		irr open B/p			Drill 5.1	
			open LA, B/p			Rec 5.0	
	55		Blk staining, mottled	100%		Left 0.1	
			LA, open, sl irr, B/p			Lost 0.0	
			LA, soft, (w), thin sh parting on B/p, 2.01 ft plant frag.				
	56		zone of mottled Blk staining				
			zone w/ Blk staining on LA bdns, mottled			57.55	
	57		zone w/ DK Blk staining, LA, mottled			540.65	
			LA broken between B/p			EL 540.2	
	58		LA B/p, broken			CD 57.9	
			open irr B/p		Box 12	57.2	
	59		several open v. thin, B/p				
	60.0		LA, sl irr, open, 3/4 in v. thin sl				





DRILLING LOG		DIVISION		INSTALLATION		SHEET 4 OF 11 SHEETS	
1. PROJECT Pa T. Ka LAKE				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or BML)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) GCH #4				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE		16. STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR	
9. TOTAL DEPTH OF HOLE							
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
528.0	70.0		Buff to LT brown below 69.7, EL 528.3	100%	Box 15	Run #13 Drill 4.95 Rec 5.1 Left 0.0 Lost 0.0	
	71		open B/p			WL 23 FT ±	
	72		LA open B/p			DD + CD 72.9, EL 525.1	
524.2	73		SS, badly weathered & frag; num grout traces & seams; to 0.05 ft thick; Vent to horiz; along frac planes		73.8	Run #14 Drill 5.6 Rec 4.2 Left 0.9 Lost 0.5	
523.7	74		D.S. f - core loss		524.2		
523.4	75		ch, reddish brn, clay; tight contact w/ RS	89.4%	Box 15		
	76		contact covered closed tight frac, (w) & stained 74.6-75.85				
	77		(w), irr stylolite				
	78		open (w), slip				
	79		sol, open B/p, clay seam on surface, upper surface sol				
	80		irr, open, (w), stylolite				
	81		SL water washed				
	82	LS	LT grey; Xtyln, fss, (w) along B/p; massive, Hd, SL (w) overall			GLEN DEAN	
	83		(w), stylolite, irr		77.6	CD 77.6 EL 520.4	
	84		core reduced 77.6-78.6 from previous run		520.4		
	85		stylolite, stained LT grey - Tan, SL (w) 77.6-78.4		Box 16	DD 78.5	
	86		stained and SL (w) 78.4-79.4 med-grey, un(w), below 79.4, EL 518.6				
	87		open B/p frac on core edge				

Hole No. 6CH #4

DRILLING LOG		DIVISION		INSTALLATION		SHEET 1 OF 11 SHEETS	
1. PROJECT <i>Potomac Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or IGL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>6CH #4</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE		STARTED COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR			
ELEVATION 518.0	DEPTH 80.3	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVER- ERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
			irr styolite; Rust brn staining on core edge 80.6-81.1	100%	Box 17	Run #15 Drill 4.2 Rec 5.0 Left 0.1 Lost 0.0	
	81		Closed LA dip w/dk grey v thin sh seam SL sol, small vng on core edge				
	82		LT grey, un(w) except on open dips				
			irr open dip		22.6	EL 515.4	
			open dip broken when removing from bbl		515.4	DD 82.7	
	83		fract on core edge, fresh, from drilling action several faint styolites 83.6-84.0		Box	Run #16	
	84		irr break along styolite; v. thin sh seam	100%	18	Drill 5.0 Rec 5.0 Left 0.1 Lost 0.0	
	85		break along styolite; SL irr, v. thin sh seam styolite w/ thin sh seam LA open dip; sol; (w)-0.03 ST above & below			WL 21.7	
	86		v. thin, irr styolite				
	87		fract on core edge from drilling core spin, badly ground broken when removing from bbl		87.6	EL 510.4	
	88		redund. sh. med grey		510.4	DD 87.7	
	89		core edge irr 87.6-89.6 fine to vibrating rods.		Box 19	EL 47.6	
	90		irr break along shaly styolite				

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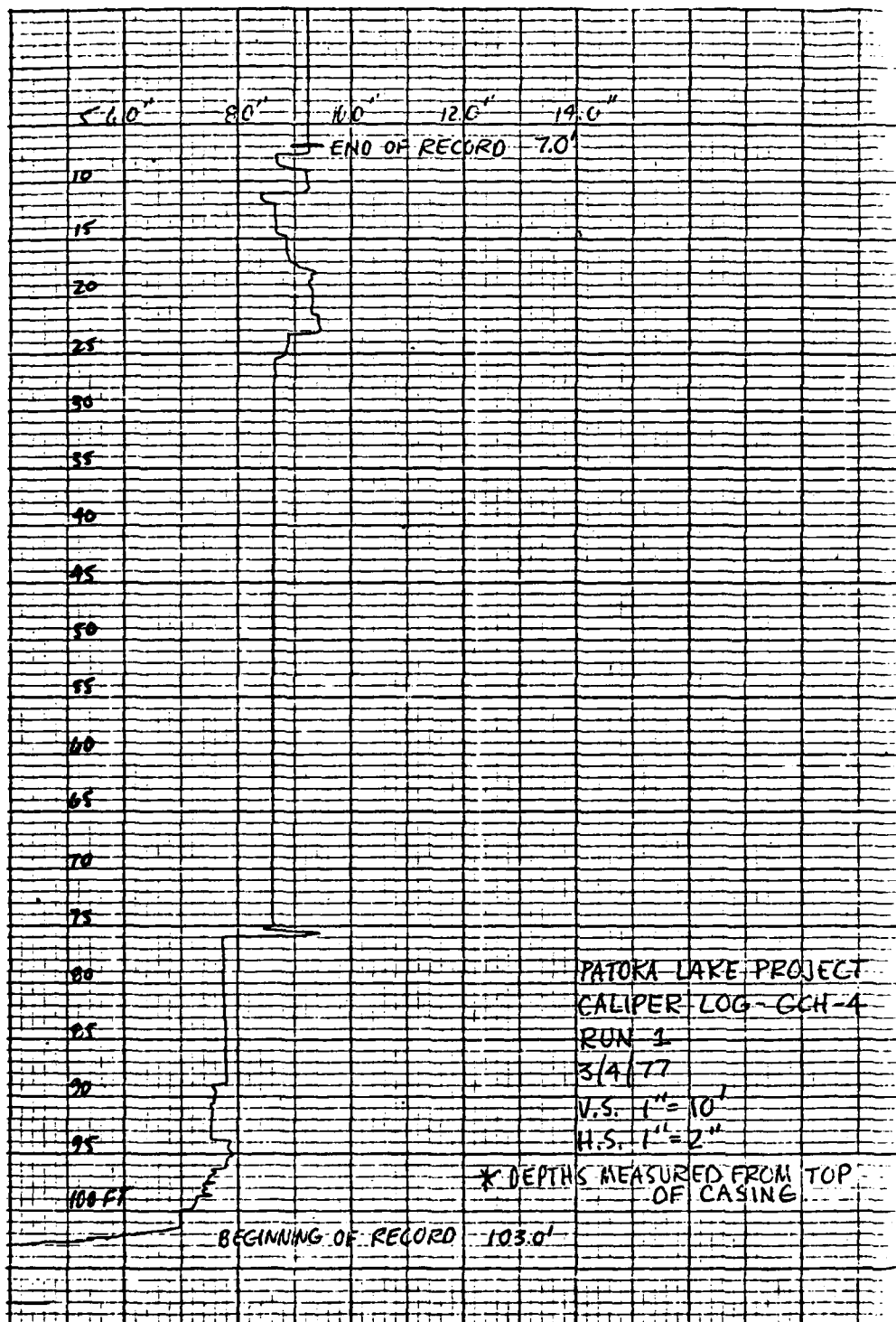
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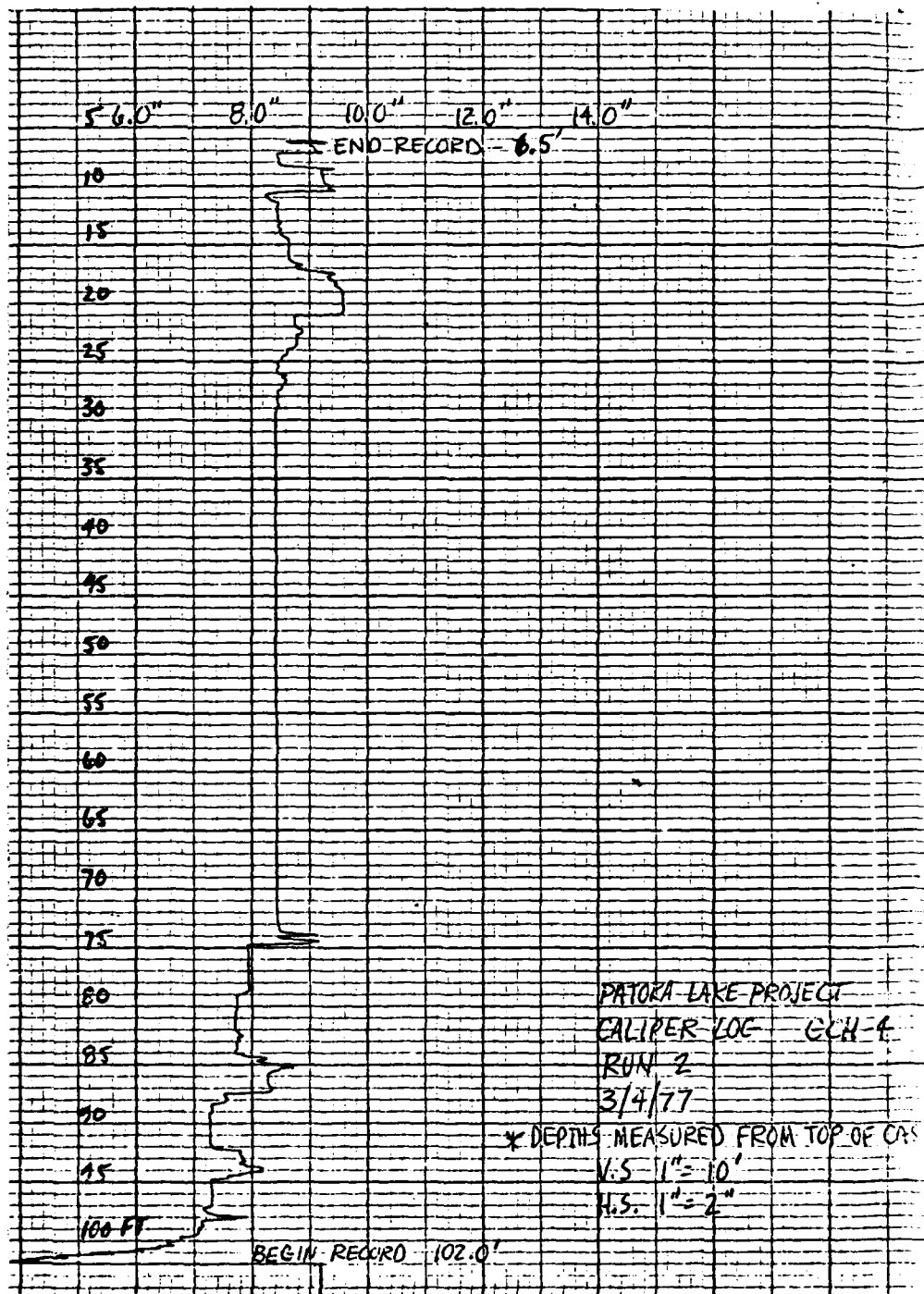
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HOLE NO.

DRILLING LOG		DIVISION	INSTALLATION	Hole No. <u>654714</u>		
1. PROJECT		10. SIZE AND TYPE OF BIT		SHEET <u>1</u> OF <u>11</u> SHEETS		
2. LOCATION (Coordinates or Station)		11. DAY FOR ELEVATION SHOWN (TBM or MSL)		12. MANUFACTURER'S DESIGNATION OF DRILL		
3. DRILLING AGENCY		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED	
4. HOLE NO. (As shown on drawing title and site number)		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		
5. NAME OF DRILLER		16. DATE HOLE		STARTED	COMPLETED	
6. DIRECTION OF HOLE		17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
7. THICKNESS OF OVERBURDEN		19. SIGNATURE OF INSPECTOR		19. SIGNATURE OF INSPECTOR		
8. DEPTH DRILLED INTO ROCK		19. SIGNATURE OF INSPECTOR		19. SIGNATURE OF INSPECTOR		
9. TOTAL DEPTH OF HOLE		19. SIGNATURE OF INSPECTOR		19. SIGNATURE OF INSPECTOR		
ELEVATION 508.0	DEPTH 92.7	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	91		LA open B/p	100%		End Run #17 Drill 5.0 Rec 5.0 Left 0.1 Lost 0.0
	92		irr break along shaley stygolite			
			fract on core edge, SL irr & smooth			
			stygolite			
			LA partially broken core when removing from bbl			
	93		core broken & frac when removing from bbl			EL 505.4 CO 92.6
			irr frac. on core edge; sub conoidal			
	94		irr break along shaley stygolite	100%		End Run #18 Drill 5.0 Rec 5.1 Left 0.0 Lost 0.0
	95					Had great difficulty setting core out of the bbl.
			irr closed stygolite			
	96					
			SL irr break along shaley seam			
	97					pulled bottom of Run
			rounded bottom w/ core change			
	98		V. small stygolite			DDH CD 97.7 EL 505.3
			shaley zone, irr, dk grey			
	99		irr break along shaley stygolite			
			irr closed stygolite			
			thin shaley seam, dk grey	100%		

DRILLING LOG		DIVISION		INSTALLATION		Hole No. <i>GCH #4</i>	
1. PROJECT <i>Potomac Lake</i>		10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		SHEET <i>11</i> OF <i>11</i> SHEETS	
2. LOCATION (Coordinate or Station)		12. MANUFACTURER'S DESIGNATION OF DRILL		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
3. DRILLING AGENCY		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		16. DATE HOLE    STARTED    COMPLETED	
4. HOLE NO. (As shown on drawing title and file number) <i>GCH #4</i>		17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR	
5. NAME OF DRILLER		6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.		7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF HOLE		10. DATE HOLE		11. ELEVATION TOP OF HOLE		12. TOTAL CORE RECOVERY FOR BORING	
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
498.0	100.0		Thin irr shaley seam w/ foss, dk grey			Run #19 Drill 4.8 Rec 4.8 Left 0.0 Lost 0.0	
	101		SL irr, vert, closed, healed GTs 0.01 ft or less wide		101.2		
			irr break on shaley seam dk grey		498.8		
	102		frac on core edge irr shaley seam, dk grey				
			break on shaley bd			CD 102.5 EL 495.5	
	103		STYOLITE		Box 22	Run #20 Drill 4.2 Rec 3.35 Left 0.25 Lost 0.0	
			kgrey shaley zone				
	104		LA, open C/p	100%			
493.7			V. shaley transition zone				
	105	SH	LA CONTACT ZONE Greenish grey; med Hcl; calc, silty; no bding; acc slicks			Hardensburg	
			SL irr open C/p				
	106		LA slicken side		105.85	CD 105.85 EL 492.15	
492.15			irr bottom				
			Left 0.25 ft in hole				
	107		bottom of Hole 106.7			DD 106.7	
	108						
	109						









DRILLING LOG		DIVISION		INSTALLATION		Hole No. <b>GCH #5</b>	
1. PROJECT		2. LOCATION (Coordinates or Station)		3. DRILLING AGENCY		4. HOLE NO. (As shown on drawing title and file number)	
5. NAME OF DRILLER		6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF HOLE		10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		12. MANUFACTURER'S DESIGNATION OF DRILL	
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		16. DATE HOLE STARTED COMPLETED	
17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR		SHEET 2 OF 11 SHEETS	
ELEVATION 529.9	DEPTH 10.0	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			B/P, STAINED				
			HA frac				
			B/P				
			VERT GT. core broken & partially missing, possible grout traces		Box 1		
	11.0		irr LA frac				
			open B/P				
			HA frac; core broken				
			open B/P	100%			
	12.0						
			open B/P				
	13.0					DD 12.9	
			open B/P				
	14.0					Run #2	
			irr frac across core when removing from bbl.		Box 2	Drill 2.1	
			irr horiz. frac. across core			Rec 5.2	
			irr frac across core			Left 0.0	
			irr horiz. frac across core			Lost 0.0	
	15.0		cuttings on top run 3 w/ rock frags			DDFCO 15.0; EL. 529.9	
	16.0					Run #3	
			open B/P, ripple marks			Drill 5.4	
	17.0			96.1		Rec 5.05	
						Left 0.1	
						Lost 0.25	
	18.0	SS	Buff-Tan. Rust brn; poorly cemented; v. fine uniform grained, v. porous; mud soft; thin-thick bd.				
	19.0						
	20.0				Box 3		

DRILLING LOG		DIVISION		INSTALLATION		Hole No. <i>GCH #5</i>	
1. PROJECT <i>Patoke Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>GCH #5</i>				13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE    STARTED    COMPLETED			
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			

ELEVATION 579.9 a	DEPTH 20.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			0.15 ft core loss			CD 20.4 EL 579.6
			cuttings to ground core on B/P surface			
			core broken			
			open B/P			
			LA closed frag			Run #4
			irr horiz B/P			Drill 3.3
			open B/P			Rec 3.1
			0.01 ft quartz seam on B/P			Left 0.3
			open B/P			Lost 0.0
			open horiz B/P			
			core broken			
			broken on B/P			
			broken on B/P			
			open B/P			
			broken on B/P			
			open B/P			
			open B/P			
			broken			
			irr horiz frag, closed			
			open B/P			
			core broken			
			badly broken, possible core loss			CD 20.9 EL 579.5
			irr B/P, open			
			irr open B/P			
			broken, possible core loss			
			irr B/P			Run #5
			v/s small quartz traces 24.8- 25.0; EL 575.1-579.9			Drill 5.0
			broken			Rec 5.3
			broken, sand, possible core loss			Left 0.0
			LA-horiz open B/P			Lost 0.0
			bedding run 5			
			horiz break			
			vert frag			
			broken, possible core loss			
			irr hor. 2 break across core			
			NA frag			
			LA, B/P break			
			open B/P			
			irr horiz break			
			open B/P			
			core irr; sl. reduced; cuttings			

Hole No. **GCH #5**

DRILLING LOG		DIVISION	INSTALLATION	SHEET 4 OF 11 SHEETS	
1. PROJECT <b>PaToHa Lake</b>			10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <b>GCH #5</b>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN			16. DATE HOLE STARTED COMPLETED		
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING		
19. SIGNATURE OF INSPECTOR					

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
569.9	31.0	LA open B/P HA frac on core edge; several small vert fracs open B/P		100		Run #6 Drill 4.5 Rec 4.5 Left 0.0 Lost 0.0
	32.0	open irr B/P			31.55 568.35	
	33.0	irr open B/Ps several thin grey sh Lam w/ grout traces core spin on sh Lam broken when removing from bbl.			Box 6	Starting to gradually raise BW run #6 DOT CD 33.2 EL. 566.7
	34.0	open B/P 0.01 ft grout trace		100		Run #7 Drill 5.2 Rec 5.2 Left 0.0 Lost 0.0
	35.0	irr open B/P				
	36.0	irr open B/P; w/ 0.01 ft grout trace			36.3 563.6	Top grout contain EL. 564.0
	37.0	irr open B/P; num. thin grout traces on Lam. planes 35.2-37.4, EL. 564.1-562.5 irr open B/P w/ grout trace				
	38.0	open B/P w/ grout trace & soft shale cuttings open B/P soft seam, cuttings smeared on B/P			Box 7	
	39.0	HA open 9T				DOT CD 38.4 EL. 561.5
	40.0	irr open B/P; partial core missing, possible core loss HA, offset closed frac open B/P; 0.1 ft partial grout seam open B/P				

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Hole No. 0-11

DRILLING LOG		DIVISION	INSTALLATION	SHEET 5 OF 11 SHEETS
1. PROJECT <i>Patoka Lake</i>		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <i>GCH #5</i>		13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION SS9.9	DEPTH 40.0	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			Rust on concrete on core edge			Run #8
			HA, sl. irr. gt; closed, several Hone gts off of this gt. closed also			Drill 5.0
						Rec 4.95
						Left 0.05
						Lost 0.0
41.0			LA open B/p; plant frags 0.01 ft HA. ST. irr. deposit on B/p	100	41.0 558.9	
			open B/p; ripple marks			
			open B/p w/ grout traces, sl. irr			
42.0			open B/p		Box 8	Temporarily lost bbl; stripped threads in adapter
			Heavy siderite deposits 40.4-41.5 w/ bdng			
43.0			hairline closed vert frac			
			open B/p, mostly w/ grout traces			EL 556.51 DO 43.4 CO 43.35
			irr B/p			START 12/28/76
			core badly broken			
			vert closed frac, 43.3- 43.55, EL. 556.55-556.35			Run #9
44.0			open B/p, sl. irr; grout trace			Drill 5.0
			open B/p w/ frac on edge of core			Rec 5.05
			open vert gt; stained			Left 0.0
45.0			HA closed gt w/ 0.005 ft grout seam			Lost 0.0
			open sl. irr. B/p w/ grout traces	100	45.3 554.6	partial DWL @ start of run 9
			open B/p's			
			Tan-buff B/p's sl. stained, Run #9			
46.0			0.01 ft grout seam			
			open B/p w/ grout trace		Box 9	
47.0			closed B/p w/ 0.01 ft discontinuous grout seam.			
			open B/p's			
48.0			open B/p			
			broken along B/p's when removing from bbl.			
						DDT CD 40.4 EL 551.5
49.0			irr open B/p			
			Zone of sh + ss lam.; bdng; irr B/p @ top; stained; grout trace on tip			
50.0						

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE  
(TRANSLUCENT)

PROJECT  
*Patoka Lake*

HOLE NO.  
*GCH #5*

D-32



DRILLING LOG		DIVISION	INSTALLATION	Hole No. <i>DLN 15</i>	
			SHEET <i>7</i>		
			OF <i>11</i> SHEETS		
1. PROJECT <i>Patocha Lake</i>			10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <i>GCH #5</i>			13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING		
			19. SIGNATURE OF INSPECTOR		

ELEVATION <i>539.9</i>	DEPTH <i>60.0</i>	LEGEND <i>c</i>	CLASSIFICATION OF MATERIALS (Description) <i>d</i>	% CORE RECOVERY <i>e</i>	BOX OR SAMPLE NO. <i>f</i>	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) <i>g</i>
			open B/p, ripple marks	100%		Run #12 Drill 3.7 Rec 4.95 Left 0.0 Lost 0.0  Left tools in hole over lunch & turned off water, hung bbl in hole
	42.0		open B/p; SL irr w/ ripple marks			
			open B/p broken when removing from bbl, badly broken		62.3	DD#CD 62.3 EL 539.6
			irr B/p, ripple marks		539.6	Start 1/4/77
	62.0		open SL irr B/p w/ grout trace			Run #13
			LA-horiz trac			Drill 5.1
			LA open highly irr B/p			Rec 5.1
			intersect filled grout hole on core edge (62.0-65.0); EL 5325-5329			Left 0.0
	79.0		horiz-LA open trac, grout trace			Lost 0.0
			0.01 ft grout seam	100%		
			0.01 ft grout seam			
	85.0		open SL irr open B/p			
			num HA & LA closed hair line fracs 63.5-64.6, EL 536.4-535.3, one HA frac has grout trace.			
			grout trace, LA frac surface			
			several HA closed hair- line fracs			
	86.0		open B/p			
			numerous HA & LA fracs; core softer than previously; highly broken; possible core missing; core soft & crumbly; LT gray.			
	67.0				67.15	
					532.75	DD#CD 67.4
	532.2		Thin grout seam, not tight & upper contact			Total OWL @ 67.7 not regained
	68.0		LA open B/p			
			2 LA frac, grout trace on lower one; core broken		Box 14	
	69.0		rust stained HA cored zone	100%		Contractor elect. to continue drilling w/o return.
	70.0		open B/p			

ENG FORM 1836  
MAR 71

PREVIOUS EDITIONS ARE OBSOLETE  
(INDICATE)

PROJECT  
*Patocha Lake*

HOLE NO.  
*GCH #5*

*D-34*

DRILLING LOG		DIVISION	INSTALLATION		FIGURE NO. 3011		SHEET 8 OF 11 SHEETS	
1. PROJECT <i>Patoka Lake</i>			10. SIZE AND TYPE OF BIT					
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (YBM or MSL)					
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL					
4. HOLE NO. (As shown on drawing title and file number) <i>GCH #5</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN			DISTURBED UNDISTURBED		
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES					
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER					
7. THICKNESS OF OVERBURDEN			16. DATE HOLE STARTED _____ COMPLETED _____					
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE					
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING					
			19. SIGNATURE OF INSPECTOR					
ELEVATION 529.9	DEPTH 70.0	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling run, water loss, depth of weathering, etc., if significant) g		
			<i>Buff colored</i>			Run #14 Drill 5.2 Rec 4.9 Left 0.3 Lost 0.0		
			<i>LA tight hair-line frac up B/p; across core</i>		71.25			
			<i>LA open stained B/p; plant frags</i>		528.55			
			<i>LA open stained B/p; plant frags</i>					
			<i>LA grout filled seam; 0.2 ft thick; tight</i>					
			<i>thin grout seam</i>					
			<i>thin grout seam on upper contact</i>					
			<i>core broken along LA B/p; rust stained</i>					
			<i>LA frac, grout sealed; several opposing hair-line frac up some grout</i>		Box 15	DO 72.6 START 1/5/77		
			<i>LA open B/p</i>			Run #15		
			<i>V. thin grout sealed</i>			Drill 4.7		
			<i>LA frac across core</i>			Rec 4.9		
			<i>LA 0.005 ft grout seam on probable B/p</i>			Left 0.1		
			<i>LA open B/p</i>			Lost 0.0		
			<i>core V. SL reduced 72.3-75.0</i>	100%				
			<i>broken, partial core missing; iron frac on core edge; LA; cuttings on surfaces.</i>			Soft 72.3-75.0 from drill		
			<i>LA SL iron open B/p</i>		75.8			
					524.1			
			<i>open B/p</i>					
			<i>0.07-0.15 ft LA grout seam; 35°; sand-lit grout; both contacts are tight; small nodule at top; possible grout hole intersect</i>					
			<i>broken when running from OBL with LA traces</i>		Box 16	DO 77.3 EL 522.7 CD 77.2		
			<i>badly broken contacts of sand-lit grout; zone of 0.3 ft core loss; clay on grout frags</i>			Run #16		
			<i>LA solution contact; residual material found on LS surface; grout traces on contact</i>			Drill 4.9		
			<i>iron break along shaley SPOLITE</i>	94%		Rec 4.7		
			<i>LS</i>			Left 0.0		
			<i>LT grey; SL (w); med-thick bed; Kelym; fass; Hd, SPOLITES.</i>			Lost 0.3		
						probably mud filled sol. cavity 77.7-78.0; EL 522.7-521.9		
					79.65			
					520.25			
						20-35		

DRILLING LOG		DIVISION		INSTALLATION		Hole No. GCH #5	
1. PROJECT Pata Lake				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (YBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) GCH #5				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES	
5. NAME OF DRILLER				15. ELEVATION GROUND WATER		16. DATE HOLE	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
7. THICKNESS OF OVERBURDEN				19. SIGNATURE OF INSPECTOR			
8. DEPTH DRILLED INTO ROCK							
9. TOTAL DEPTH OF HOLE							
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
519.9	80.0		rust colored staining on core edge				
	81.0		rust colored staining on core edges				
	82.0		LA open B/p		Box 17		
	83.0		vert fine on core edge, probably from removing core from bbl.				DD & CD PZ. 2; EL 517.7
	84.0		broken when removing from bbl.				
	85.0		highly iron tight stylolite				Run #17
	86.0		iron closed HA GT; near core edge; partial stained surface				Drill 5.2
515.6	87.0		hardline closed GT on core edge; highly (w) zone	81.3%			Rec 3.9
	88.0		grout seam; w/dk brn clay @ top		84.3		Left 0.4
514.7	89.0		0.9 ft core loss; cavity;		515.6		Lost 0.9
	90.0		iron sol B/p; residual soft surface; (w) to 0.1 ft below 81.0		Box 18		from driller:
	91.0						gassed core hole
	92.0						edges (sol seam)
	93.0						84.3 - 85.3; mud seam
	94.0						85.3 - 85.5.
	95.0						
	96.0						
	97.0		iron sl. sol; rust brn B/p; possible loss; (w) 0.05 ft each side of contact.				
	98.0		rust brn stained break along stylolite				
	99.0		core broken when removing from bbl.				
	100.0		rust stained B/p; sl. iron; iron				
	101.0		0.1 ft core loss				
	102.0		soft clay seam w/grout trace.				
	103.0						
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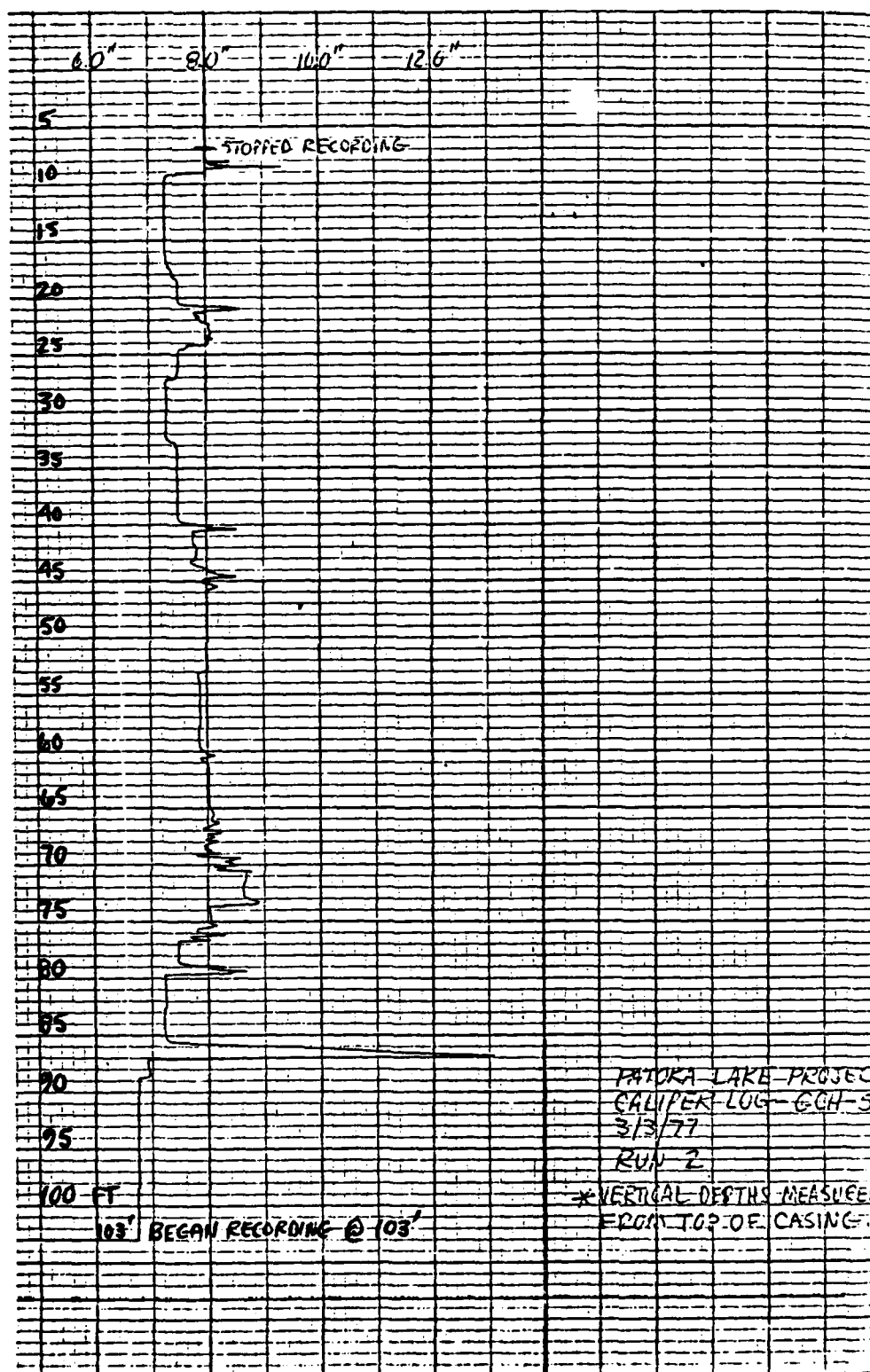
DRILLING LOG		DIVISION		INSTALLATION		Hole No. <i>GCH #5</i>		SHEET <i>10</i> OF 11 SHEETS	
1. PROJECT <i>Pataha Lake</i>				10. SIZE AND TYPE OF BIT					
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)					
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL					
4. HOLE NO. (As shown on drawing title and title number) <i>GCH #5</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED		UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES					
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER					
7. THICKNESS OF OVERBURDEN				16. DATE HOLE <input type="checkbox"/> STARTED <input type="checkbox"/> COMPLETED					
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE					
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING _____ %					
19. SIGNATURE OF INSPECTOR									

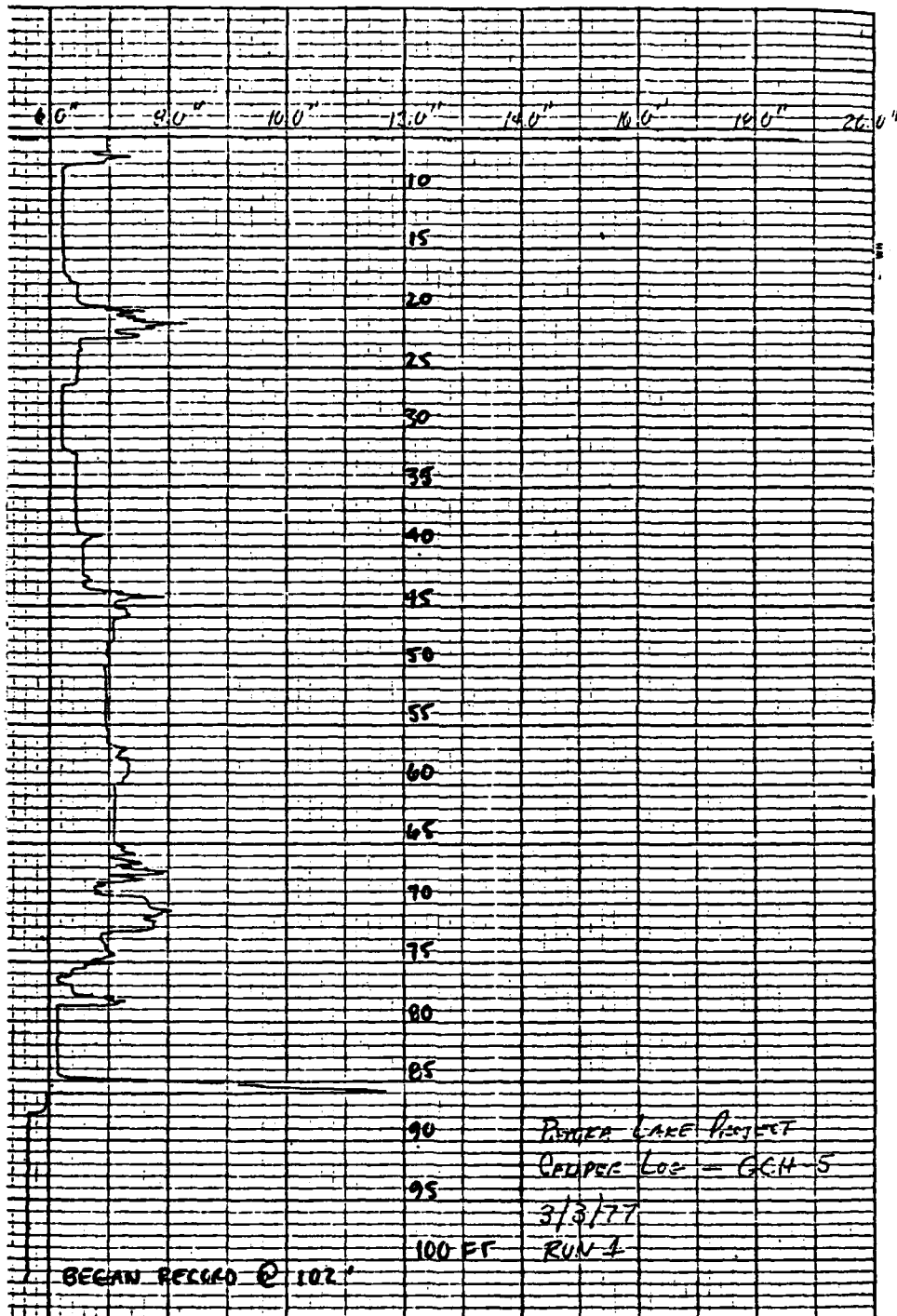
  

ELEVATION <i>509.9</i>	DEPTH <i>90.0</i>	LEGEND <i>c</i>	CLASSIFICATION OF MATERIALS (Description) <i>d</i>	% CORE RECOVERY <i>e</i>	BOX OR SAMPLE NO. <i>f</i>	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) <i>g</i>
				<i>98%</i>	<i>Box 19</i>	<i>Run #18 Drill 4.8 Rec 5.0 Left 0.1 Lost 0.1</i>
<i>91.0</i>			<i>highly irr break along stylolite; color variation; core broken in part irr stylolite</i>			
<i>92.0</i>			<i>B/p break along shaley zone v sl. reduced from redrilling.</i>		<i>92.1</i>	<i>EL CO 92.1</i>
<i>93.0</i>			<i>Grey</i>		<i>507.8</i>	<i>DD 92.2</i>
<i>94.0</i>			<i>Dk grey; sl shaley zone irr B/p break</i>	<i>100%</i>	<i>Box 20</i>	<i>Run #19 Drill 5.0 Rec 5.0 Left 0.2 Lost 0.0</i>
<i>95.0</i>						
<i>96.0</i>			<i>irr break along stylolite + shaley seam</i>			
<i>97.0</i>			<i>small flange indicating bottom of run open B/p</i>		<i>97.0</i>	<i>CO 97.0 EL</i>
<i>98.0</i>			<i>LA shaley seam, Dk grey stylolite</i>		<i>502.9</i>	<i>DD 97.2</i>
<i>99.0</i>						<i>START 1/6/77</i>
<i>100.0</i>			<i>open irr B/p highly irr tight stylolite</i>	<i>100%</i>	<i>Box 21</i>	<i>Run #20 Drill 4.9 Rec 5.1 Left 0.0 Lost 0.0</i>

*D-37*







①

D-40

DRILLING LOG		DIVISION	INSTALLATION	Hole No. 621-76		SHEET 1 OF 7 SHEETS
1. PROJECT KATLA LAKE		ORD	10. SIZE AND TYPE OF BIT 11. DAYUM FOR ELEVATION SHOWN (MSL = 100)		MSL	
2. LOCATION (Coordinates or Station) 100 100 100 100			12. MANUFACTURER'S DESIGNATION OF DRILL Model B-61			
3. DRILLING AGENCY Continental Drilling Co.			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
4. HOLE NO. (As shown on drawing title and site number) SCH #6			14. TOTAL NUMBER CORE BOXES 13			
5. NAME OF DRILLER S. D. Ross			15. ELEVATION GROUND WATER 521.4			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEG. FROM VERT.			16. DATE HOLE STARTED 11/23-75 COMPLETED 2/24/77			
7. THICKNESS OF OVERBURDEN - 5.2			17. ELEVATION TOP OF HOLE 521.4			
8. DEPTH DRILLED INTO ROCK 21.7			18. TOTAL CORE RECOVERY FOR BORING 99.9			
9. TOTAL DEPTH OF HOLE 26.9			19. SIGNATURE OF INSPECTOR [Signature]			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
561.4	10.0					Drilled thru D.S. and set 6.0 ft of 8 inch casing 11/23-75
	11					WL; 3/4/77: 50.0 = 521.4 EL
	12					
	13					
	14					
556.9	14.5		Start Core 14.5		14.5	
	15	SS	badly broken, clay traces badly broken w/ rain clay, some Past brn - Buff.; poorly cemented; v. fine grain; mod soft-mod hdy; uniform grain, occ SH partings; occ plant frags, rain bd	100%	Box 1	Run #1 Drill 3.4 Rec 2.9 Lost 0.5 Lost 0.0
	16		soft (w) SH seam, stained very open B/p, ripple marks open dip, SH parting cracks along B/p & SH parting broken SH parting			
	17		Dark - 6 mm silt clay, SH lenses, x bedded, discontinuous			
554.6	17.4		0.3 ft 2 core lost			CD 17.4 EL 554.0
553.7	18		occ 1/2 in. thin SH partings thru Run #1 broken, w/ many cuttings to rich frags open B/p, ripple marks	99.2%		CD 17.9
	19		mod (w) SH seam, 1/4 in. SS, cut w/ 5/16" black mottled staining, LA B/p's black, broken, many soft traces of clay on faces		19.1 552.3	
	20.3					

DRILLING LOG		DIVISION	INSTALLATION	Hole No. GCH #6		SHEET OF 1 SHEETS
1. PROJECT Patterson			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DAYUM FOR ELEVATION SHOWN (FSM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN			
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE STARTED _____ COMPLETED _____			
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
551.4	20.0		loosely broken; fat clay (surface); staining; highly (w); black; occ. carb. frags, possible soil zone broken			Run #2 Drill 5.1 Rec 4.9 Left 0.4 Lost 0.3
	21		open B/P broken vert. irr. frac		Box 2	
	22		occ. (w), SH partings w/ bl- staining; 22.6-23.6 EL 552.0-548.8			
			open B/P w/ (w) SH parting (w) SH parting, open B/P broken core frac on edge clay cuttings on open int. B/P			CD 22.6 EL 548.8
	23					DD 23.0
			open B/P, (w) SH parting fracs on core edges open B/P, clay smeared vert. frac open clay smeared B/P open clay smeared B/P closed vert. sl. irr. frac open B/P	100%		Run #3 Drill 5.0 Rec 5.1 Left 0.3 Lost 0.0
	24				23.7 547.7	
	25		thin 0.01 ft grout trace open B/P less (w) below 22.6, EL 548.8		Box 3	
	26		open B/P near vert. sl. irr. frac. open clay smeared B/P w/ grout trace closed sl. waterwashed B/P			
	27		open B/Ps vert. open frac			
			broken, vert. fracs w/ clay on surfaces, partially broken when running from core		27.7 543.7	CD 27.7 EL 543.7
	28		open B/P on thin (w) SH seam broken clay smeared zone open B/P on (w) SH seam clay smeared open B/P			DD 28.0
	29		(w) SH parting, open open B/P, (w), clay.	100%	Box 4	
	30.0					D-42

Hole No. 6CH #6

<b>DRILLING LOG</b>		<b>DIVISION</b>	<b>INSTALLATION</b>	<b>SHEET 3</b> OF 7 SHEETS
1. PROJECT PaToKa Lake		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)		11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) ECH #6		13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
541.4	31		fract & broken bed			Run #4
			LA open B/p			Drill 4.9
			vert w/ fract, filled w/ thin grout seam			Rec 4.9
			open B/p, LA, grout traces opening			Left 0.3
			rust orn stained zone			Lost 0.0
	32		open B/p; LA			
			open B/p; LA			
			vert open B/p		32.6	CD
			vert open fract		538.8	32.6 EL 538.8
	33		core drilled & reduced			DO 32.9
538.0			open B/p			Run #5
			core sl reduced			Drill 5.6
			open B/p			Rec 2.6
			Grout Trace			Left 1.2
	34		Light grey below 33.4 ±			Lost 2.1
			zone of badly broken & washed core; zone of 2.1 ft core loss; one grout trace near top of zone, acc clay smeared B/p's	55%	Box 5	
	35					
			2.1 ft core loss d.t 33.4-36.9; EL. 538.0 to 534.5			Tools chattering during run #5
534.5	36					
			0.02 ft wide grout seam, vert. crack smth broken @ top; acc vert traces, one other trace filled w/ grout			CD 37.3 EL 534.1
534.1	37					
			0.4 ft core loss			
533.7	38		V. soft sandy broken, possible sand seam			
			clay smeared B/p	69%	38.4 533.0	DO 38.5
			HA, trace, stained			Run #6
			broken			Drill 2.5
			HA, trace, w/ cuttings			Rec 1.8 ±
	39		core trace & broken on edges			Left 1.2
			broken on edges			Lost 0.4 ±
			clay smeared B/p, cuttings			
			HA, trace, grout trace, clay smeared			Tools vibrating during part of run #6
531.6			vert B/p trace, V. poorly cemented			CD 39.9 EL 531.6

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PROJECT

D-43

HOLE NO.

Hole No. **GCH #6**

DRILLING LOG		DIVISION	INSTALLATION	SHEET <b>4</b> OF 7 SHEETS
1. PROJECT <b>Patoka Lake</b>			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL	
4. HOLE NO. (As shown on drawing title and file number) <b>GCH #6</b>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER	
7. THICKNESS OF OVERBURDEN			16. DATE HOLE STARTED _____ COMPLETED _____	
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE	
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING	
			19. SIGNATURE OF INSPECTOR	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
531.4	40.0					
531.3			0.5 ft ± core loss Partial core missing, gravel & clay trace on HA frac Partial core missing, grt & frag; gravel & clay on frac badly broken & frag, clay & gravel traces	67%	Box 6	DD 41.0 Run #7 Drill 1.7 Rec 1.0 Left 1.4 Lost 0.5
530.1			core badly frac, vert. early; gravel & clay traces on fine surface; 1.9 ft core loss; exact location difficult to determine			DD 42.7
528.2			core in fragments, buff, badly broken, rt grey piece E. top, clay on some surfaces - 1st open B/P; stained			Run #8 Drill 5.4 Rec 4.3 Left 0.6 Lost 1.9
			beveled core spin LA zone w/ num plant frags & concretions LA frac, 1/2 across core; w/ horiz break LA fine across core	69%	Box 7	
			LA 1st break across core 2 1st HA frags 1st horiz, break, plant frags LA fine on core edge HA frac near core edge, none stained zone, rust brn.			
			open B/P, plant frags; stained, clay smeared 2 HA frags across core opposed HA frags, partial core missing 1st horiz break pos. 1st spin			
			HA fine, partial core missing; carb, silty washed, partial core missing LA fine across core			CO 47.5 EL 523.9
523.9			LA open B/P, thin clay-in seam, crushed horiz fine 1st HA fine, partial core missing			DD 48.1
522.7			12 ft core loss; exact location difficult to determine partial core missing, fine, washed HA fine on core edge, marred w/ clay, frags core spin core beveled 1st open, washed B/P	48%	Box 8	Run #9 Drill 3.4 Rec 1.1 Left 1.7 Lost 1.2
521.6						CO 49.4 EL 521.6



DRILLING LOG		DIVISION		INSTALLATION		Hole No. <i>6CH #6</i>	
1. PROJECT <i>Potoka Lake</i>		10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (FSM or MSL)		SHEET <i>5</i> OF 7 SHEETS	
2. LOCATION (Coordinates or Station)		12. MANUFACTURER'S DESIGNATION OF DRILL		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
3. DRILLING AGENCY		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		16. DATE HOLE	
4. HOLE NO. (As shown on drawing title and file number)		15. DATE HOLE		STARTED		COMPLETED	
5. NAME OF DRILLER		17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR	
7. THICKNESS OF OVERBURDEN		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR			
8. DEPTH DRILLED INTO ROCK		19. SIGNATURE OF INSPECTOR					
9. TOTAL DEPTH OF HOLE							
ELEVATION <i>521.4</i>	DEPTH <i>52.0</i>	LEGEND <i>c</i>	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY <i>e</i>	BOX OR SAMPLE NO. <i>f</i>	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
			1.0 I ft. core loss; actual location difficult to determine				
<i>520.6</i>	<i>51</i>		badly broken, fragments only		<i>Box 8</i>		
			redrilled & reduced				
			core fract & stained near edges			<i>00 51.5</i>	
			core spin				
<i>52</i>			core reduced <i>50.8-53.3</i>				
			badly broken				
			open B/p; clay smeared	<i>83%</i>		<i>Run #10</i>	
			core spin			<i>Drill 4.8</i>	
<i>53</i>			core abraded, plant frags			<i>Rec 5.0</i>	
			core reduced			<i>Left 0.5</i>	
			core broken, partial core missing		<i>53.5</i>	<i>Lost 1.0</i>	
			concretion, horiz break		<i>517.9</i>		
<i>54</i>							
			fract on core edge				
<i>55</i>			sand grout, w/ ss frags interspersed; LA top contact		<i>Box 9</i>		
			brown grout & ss frags; possible loss zone				
<i>515.6</i>			grout interspersed w/ frac ss; tight; mostly grout			<i>CD 55.8</i>	
<i>56</i>						<i>EL 515.6</i>	
			2.5 ft. core loss; probably clay, filled cavity			<i>DD 56.3</i>	
<i>57</i>							
			ss, ls, grout & clay traces; most of sample washed out of bbl when removing	<i>53%</i>		<i>Run #11</i>	
<i>513.1</i>			core broken			<i>Drill 5.0</i>	
<i>512.9</i>			break along shale, ss, ls			<i>Rec 2.6</i>	
			LA fine across core			<i>Left 0.2</i>	
			ss, ls, w/ clay on horiz break		<i>51.0</i>	<i>Lost 2.5</i>	
			(w) stained on edges		<i>512.4</i>		
			med grey below ss; ss, ls; fss; md; mass ss, ls, ss, ls; occ shale ss, ls			<i>washed red &amp; brown clay out of hole @ start of run #11</i>	
<i>600</i>						<i>ELEN DEAN</i>	

Hole No. GCH #6

DRILLING LOG		DIVISION		INSTALLATION		SHEET 6 OF 7 SHEETS	
1. PROJECT Pat. M. Lake				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) GCH #6				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES	
5. NAME OF DRILLER				15. ELEVATION GROUND WATER		16. DATE HOLE	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
7. THICKNESS OF OVERBURDEN				19. SIGNATURE OF INSPECTOR			
8. DEPTH DRILLED INTO ROCK							
9. TOTAL DEPTH OF HOLE							
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
511.4	60.1		core frac on edges core spin 60.0				
	61		frac on core edge core spin bit marks from previous run		Box 10	DD 61.3	CO 61.1 EL 510.3
	62		core reduced & tapered 61.1 - 63.9, EL 510.3 - 507.5				Run #12 Drill 4.9 Rec 5.1 Left 0.0 Lost 0.0
	63		core spin, beveled frac on core edge	100%			
	64		shaley stypolite zone; broken, partial core missing; sl. sol. residue on surface		Box 11	63.7 507.7	
	65		irr open B/p				
	66		sl shaley dk gray zone				DD 66.2, EL 505.2
	67		LA shaley thin stypolite				Run #13 Drill 5.0 Rec 5.0 Left 0.0 Lost 0.0
	68		LA shaley zone, Hd irr break along shaley stypolite		Box 12	67.85 503.55	
	69		shaley zone, dk gray, Hd	100%			
	70.0		break along shaley zone				

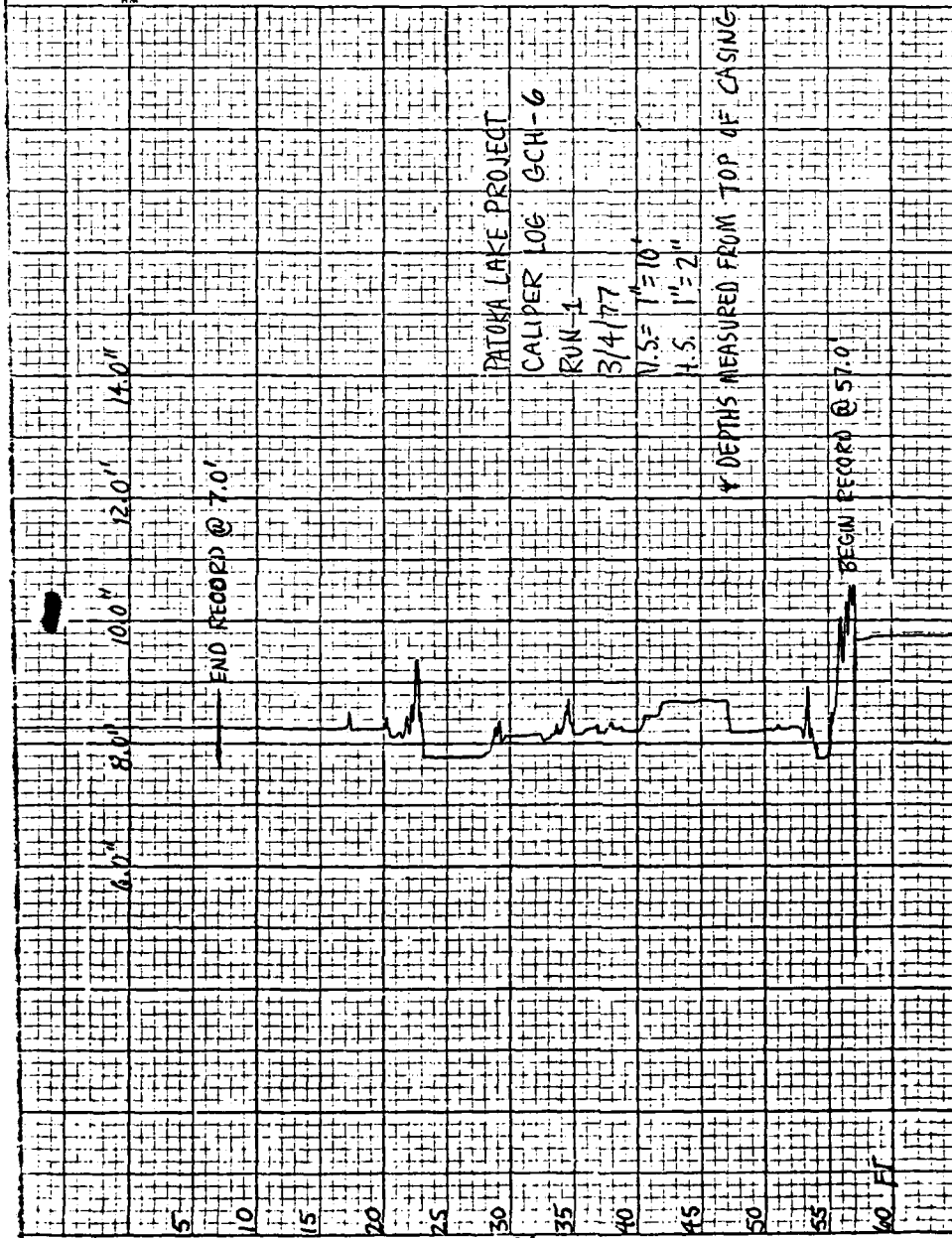
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PROJECT D-46 HOLE NO. GCH #6

Hole No. GCH #6

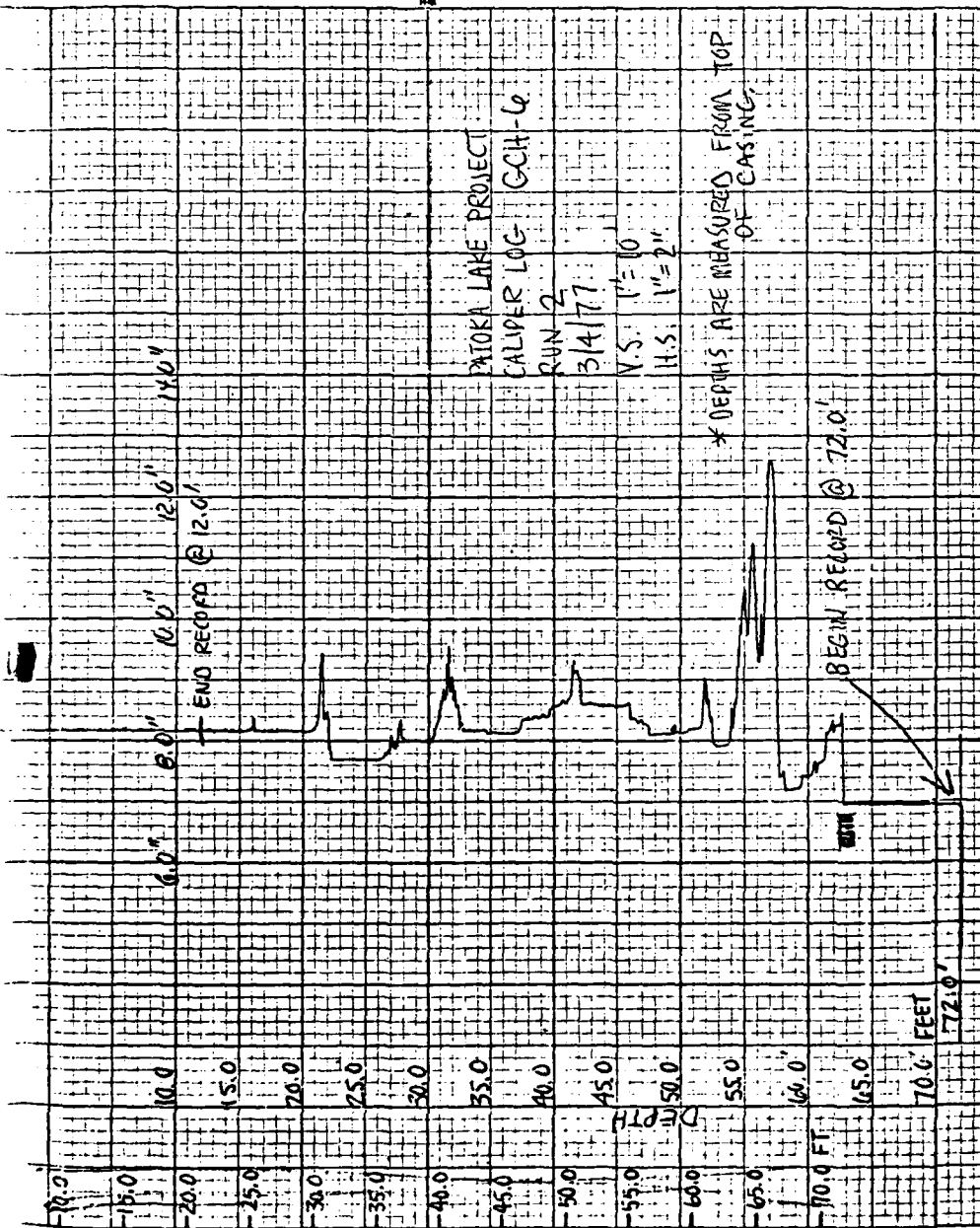
DRILLING LOG		DIVISION		INSTALLATION		SHEET 7 OF 7 SHEETS	
1. PROJECT Pat. La Lake				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) GCH #6				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE STARTED COMPLETED			
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
501.4	70.0	c	d	e	f	g	
	71		SYOLITE broken & frac when removing from bbl			DD + CD 71.2 RL 500.2 Pulled bottom of Run	
	72		Dk grey shaley seam, Mcl. frac on edges when removing from bbl		72.2 499.2	Run # 14 Drill 5.0 Rec 5.0 Lcfr 0.0 Lost 0.0	
	73		frac on core edges irr break along shaley seam frac on core edges when removing from bbl irr break along shaley seam	100%	Box 13	many breaks in this run caused by method of removing from bbl.	
	74						
	75		irr break along shaley zone frac core edge when removing from bbl.				
	76		edges frac when removing from bbl. Bottom of Hole		76.2 495.2	DD + CD 76.2 RL 495.2	
495.2							
	77						
	78						
	79						
	80.0						

TEXAS INSTRUMENTS INCORPORATED, HOUSTON, TEXAS, U.S.A.

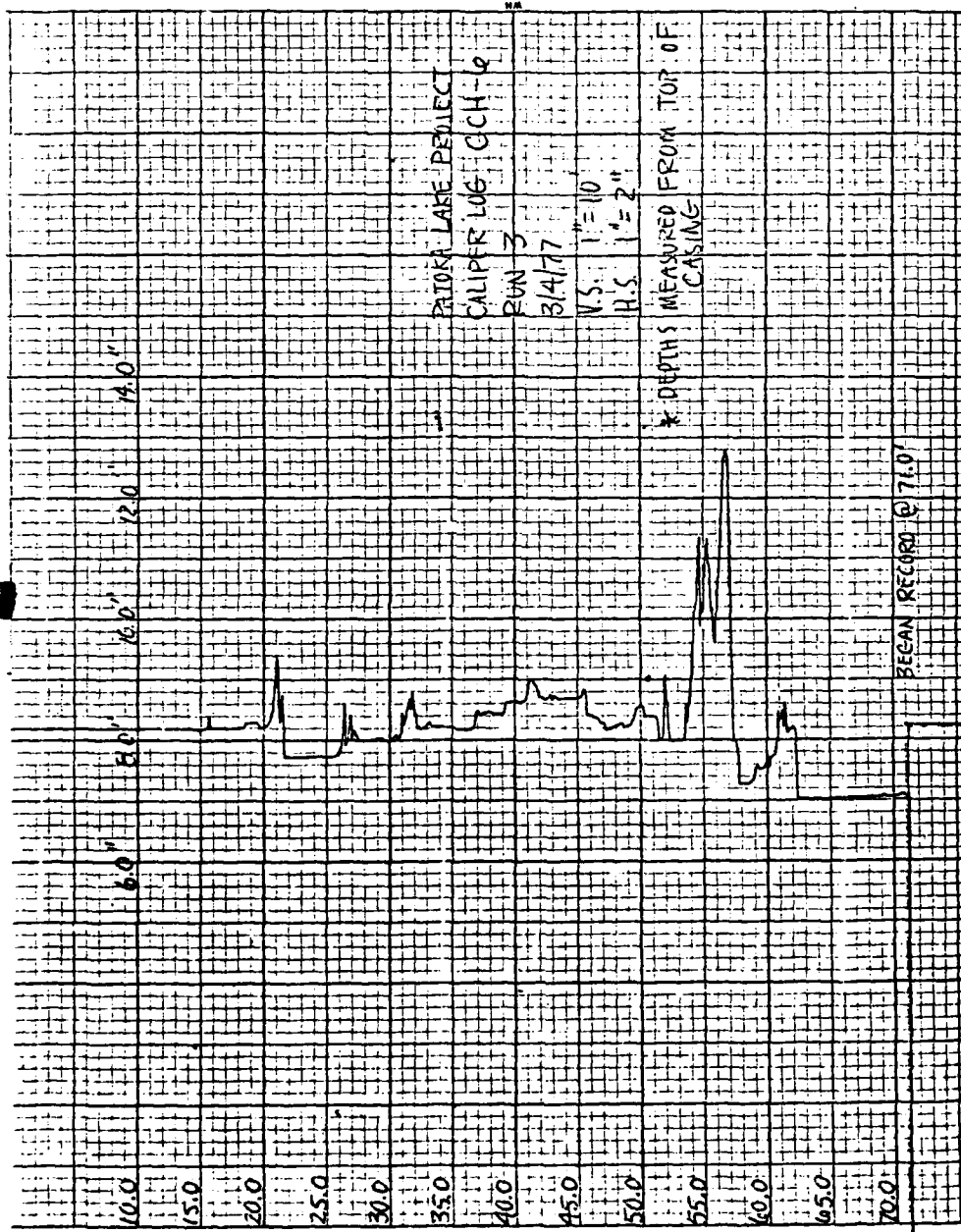


81  
FEET  
LEFT

D-40



MADE IN U.S.A. CHART WH. TEXAS INSTRUMENTS INCORPORATED, HOUSTON, TEXAS, U.S.A.



PRIONA LAKE PROJECT  
 CALIPER LOG CCH-9  
 RUN 3  
 3/4/77  
 V.S. 1"=10'  
 H.S. 1"=2'

\* DEPTHS MEASURED FROM TOP OF CASING

BEGAN RECORD @ 71.0'

TEXAS INSTRUMENTS INCORPORATED, HOUSTON, TEXAS, U.S.A.  
 CHART WH  
 MADE IN U.S.A.



DRILLING LOG		DIVISION		INSTALLATION		SHEET 2 OF 2 SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>GCH #7</i>				13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		13. DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE		16. STARTED COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
8. DEPTH DRILLED INTO ROCK				19. SIGNATURE OF INSPECTOR			
9. TOTAL DEPTH OF HOLE							

ELEVATION a	DEPTH SO. 0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			Grout seam; 0.5 ft thick		Box 2	
	51	clay	open (w) B/p; SL. 15			
			clay seam; w/grout; some loose sand; lam; water wasted		51.65	DD + CD 51.65; EL. 505.55
	52		Grout seam		505.55	
			(w) surface on LS w/ fess			Run #4
		clay w/ ann grout. stringers				Drill 7.8
	53		open, stained (w), B/p			Rec 4.8
			mostly grout, SS w/ clay			Left 0.0
				100%	Box 3	Lost 0.0 ±
	54		marbled SS, sand & grout w/ clay			
	55		grout w/ SS, sand & clay; 90% grout			discrepancy between Tape depths and core recovery
	56		clay, fatty, mottled tan-redish brn; some sand and grout, some MNITLS		56.45	DD + CD 56.45 ±
500.75			Hole abandoned due to lost tools @ 59.45			
	57					
	58					
	59					
	60					

ENG FORM  
MAR 71 1836

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(TRANSLUCENT)

PROJECT

*Patoka Lake 4-52*

HOLE NO.

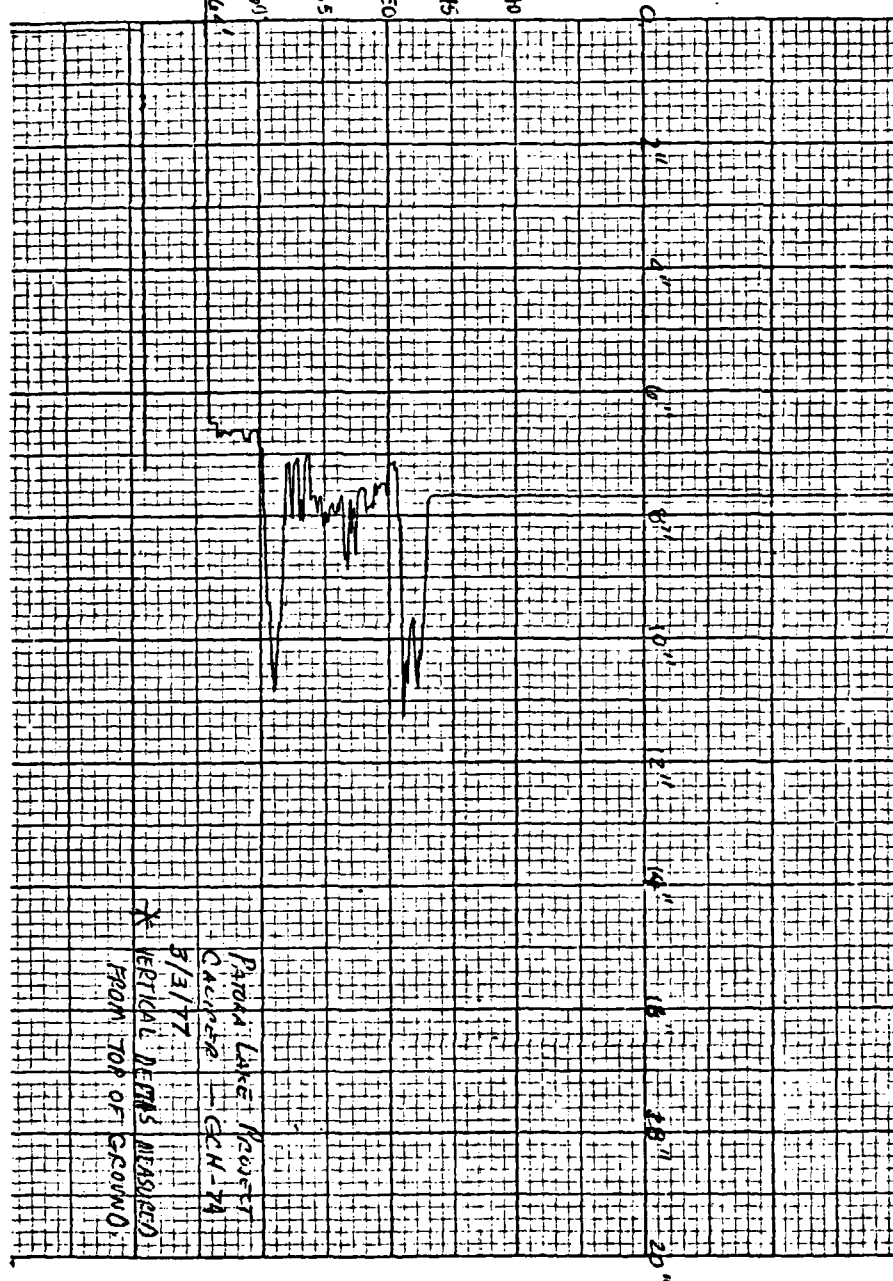
*GCH #7*



AS. U.S.A.

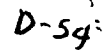
CHART WH

MADE IN U.S.A.



FEET  
LEFT

3/3/77  
Panda Lake, New York  
CH-74  
\* VERTICAL REFERENCE  
FROM TOP OF GRAVING





DIVISION		INSTALLATION		SHEET 2 OF 3 SHEETS	
1. PROJECT		10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED      UNDISTURBED	
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE		15. ELEVATION GROUND WATER			
<input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.		16. DATE HOLE		STARTED      COMPLETED	
7. THICKNESS OF OVERBURDEN		17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK		18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE		19. SIGNATURE OF INSPECTOR			

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
a	b	c	d	e	f	g
61		SH	core v. badly broken, unconsolidated, crumbled due to drilling action 59.2-63.05			Run #1 Drill 6.8 Rec 3.5 ± ✓ Left 3.3 Lost 3.3
62			DR - greenish grey, silty, thin bed, mod soft, <del>slightly</del>	51.5%		
63			core reduced core water washed 63.05 - 65.3			
64						
65						EL DDCD 65.3 427.25
66			gagged core bottom core badly broken & crumbly reddish brown v. soft, clayey soft - v soft 65.3 - 66.7 L.A. slice across core occ v small rounded stones 66.7 silty 67.0 - 67.4 ham open cracks			Run #2 Drill 5.0 Rec 5.0 ✓ Left 0.0 Lost 0.0
67						
68		SH	crumbly, v. soft bottom, well developed hard slick 2. limonite, sand & silt, greenish brown, hard, broken 100% hard break	100%		
69			mod angle - some were the soft slick bottom pulch. brown 68.5 - 69.3			
70			HA slick, core broken badly broken 100% hard break HA slicked slick must	100%		69.25 - 70.3 69.25 - 69.25

DRILLING LOG		DIVISION		INSTALLATION		SHEET 3 OF 3 SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C 103-05</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		16. STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING %			
19. SIGNATURE OF INSPECTOR							
ELEVATION a	DEPTH 70.0	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
422.85		1	caliche + silty clay bottom of hole			DD+C0 70.3 + 422.85	
	71.0						
	72.0						

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PROJECT  
*Patoka Lake D-57* HOLE NO.  
*C 103-05*

DRILLING LOG		DIVISION OHIO RIVER	INSTALLATION LOUISVILLE DISTRICT	Note No. C-142-00	SHEET 1 OF 12 SHEETS	
1. PROJECT TOTO LAKE			10. SIZE AND TYPE OF BIT H.V.			
2. LOCATION (Coordinates of Station) C-142+00 7 RT (GROUND LINE)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL			
3. DRILLING AGENCY CONTINENTAL DRILLING			12. MANUFACTURER'S DESIGNATION OF DRILL CP-65			
4. HOLE NO. (As shown on drawing title and file number) C-142+00			13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN			
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES 7			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER -			
7. THICKNESS OF OVERBURDEN 0.0			16. DATE HOLE 8/29/78			
8. DEPTH DRILLED INTO ROCK 117.4			17. ELEVATION TOP OF HOLE 885.5			
9. TOTAL DEPTH OF HOLE 117.4			18. TOTAL CORE RECOVERY FOR BORING 88.5			
			19. SIGNATURE OF INSPECTOR J. B. B. B.			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
1						ROCKBIT FROM 0.0 to 7.4' BEGAN CORING. HUNG CORE BARREL ON RUN 2 @ 16.6', HAD TO RUN CASING DOWN TO 17.3' TO RETRIEVE BARREL.
2						
3						
4		SS	(DRILLER'S CLASSIFICATION)			
5						
6						
7						
8						7.4' START CORING
9		SS	Lt TAN TO BUFF, MOD. HC, THIN BD, VERY FINE CP, FRAGILE, NUM. S-LN B/P'S, RUST FLOCKS THROUGHOUT, MICAL (W)	83.5		RUN #1 EC: 588.1 DRILL 4.7 PEC 3.5 LEFT 0.6 LOST 0.7
10						

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PROJECT TOTO LAKE D-58 HOLE NO. C-142+00

DRILLING LOG		DIVISION	INSTALLATION	HOLE NO. (142+00)	SHEET 2 OF 12 SHEETS
1. PROJECT <i>Patoka Lake</i>			10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <i>C-142+00</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK <i>117.4</i>			17. ELEVATION TOP OF HOLE <i>585.5</i>		
9. TOTAL DEPTH OF HOLE <i>117.4</i>			18. TOTAL CORE RECOVERY FOR BORING		
			19. SIGNATURE OF INSPECTOR		

ELEVATION <small>a</small>	DEPTH <small>b</small>	LEGEND <small>c</small>	CLASSIFICATION OF MATERIALS (Description) <small>d</small>	% CORE RECOVERY <small>e</small>	BOX OR SAMPLE NO. <small>f</small>	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) <small>g</small>
11						
12			0.6' CORE LOSS			CD 11.6' EL: 583.9
13						DD 12.1
14		SS		77.1%		RUN #2 DRILL 4.5 REC 9.2 4.4 LEFT 0.0 LOST 1.3 (0.7' LOST DUE TO HANGING CORE BARREL)
15						
16						
17			0.7' LOST DUE TO DIFFICULTY RETRIEVING CORE BARREL			DD 16.6'
18						ADVANCED CASING 0.7' FAST CORE BARREL.
19		SS	2.2' CORE LOSS DIST FROM EL 578.2 to EL 575.4	67.8%		CD 17.3 START RUN #3 EL: 576.2
20						RUN #3 DRILL 10.1 REC 4.5 4.6 LEFT 3.3 LOST 2.3 2.2





DRILLING LOG		DIVISION	INSTALLATION	SHEET 4 OF 12 SHEETS
1. PROJECT <b>PaToKa Lake</b>		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)		11. DAYUM FOR ELEVATION SHOWN (FSM - MSL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <b>C-142+00</b>		13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK <b>17.4</b>		17. ELEVATION TOP OF HOLE <b>595.5</b>		
9. TOTAL DEPTH OF HOLE <b>117.4</b>		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION <small>a</small>	DEPTH <small>b</small>	LEGEND <small>c</small>	CLASSIFICATION OF MATERIALS (Description) <small>d</small>	% CORE RECOVERY <small>e</small>	BOX OR SAMPLE NO. <small>f</small>	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) <small>g</small>
31						<b>COE</b> <b>DD 31.3 EL 564.2</b>  <b>RUN # 5</b> <b>DRILL 10.0</b> <b>REC 9.8 9.6</b> <b>LEFT 0.0</b> <b>LOST 0.5 0.5</b>
32			0.5' CORE LOSS (W), STAINED TAN-GRAY			
33						
34		SH	GRAY (W) TO TAN-GRAY, MOD SOFT, THIN BD, NUMEROUS CAL INCLUSIONS IN LOWER 2.8', HIGHLY (W)			
35						
36			TRANSITION FROM SH TO LS, FL SANDY BROKEN	95.0%		
37			DK. (W) TO BROWN VERT FRAC, HEALED OPEN e/p's			
38		LS				
39			CORE SPINS			
10						

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.  
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PROJECT **PATOKA LAKE D-61** HOLE NO. **C-142+00**



<b>DRILLING LOG</b>		DIVISION	INSTALLATION	SHEET <u>6</u> OF 12 SHEETS
1. PROJECT <u>Patoka Lake</u>			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station)			11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL	
4. HOLE NO. (As shown on drawing title and file number) <u>C-142+00</u>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER <u>595.5</u>	
7. THICKNESS OF OVERBURDEN			16. DATE HOLE STARTED _____ COMPLETED _____	
8. DEPTH DRILLED INTO ROCK <u>117.4</u>			17. ELEVATION TOP OF HOLE	
9. TOTAL DEPTH OF HOLE <u>117.4</u>			18. TOTAL CORE RECOVERY FOR BORING _____ %	
			19. SIGNATURE OF INSPECTOR	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV- ERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
a	b	c	d	e	f	g
51			HAIRLINE STY, TIGHT			
			OPEN R/P			
			SHALEY			
52			h/o STY, OPEN			
53			OPEN R/P			
			NUMEROUS HAIRLINE STY, TIGHT			
54			OPEN R/P			
55		LS	OPEN R/P's			
56			STY, TIGHT			
			OPEN R/P			
57			STY, OPEN			
			STY, TIGHT			
			OPEN R/P			
58						
			STY, TIGHT			
			STY, OPEN			
59						
60			THIN RD, & OPEN R/P's			

ENG FORM 1836  
MAR 71

PREVIOUS EDITIONS ARE OBSOLETE  
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PROJECT  
PATOKA LAKE D-63 HOLE NO.  
C-142+00

DD 51.4'  
RLN #7  
DRILL 10.1  
REC 9.0  
LEFT 0.2  
LOST 0.8

91.8%  
BOX 3

DRILLING LOG		DIVISION		INSTALLATION		SHEET 7 OF 12 SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C-142+00</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED <input type="checkbox"/> UNDISTURBED <input type="checkbox"/>	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE		STARTED _____ COMPLETED _____	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE <i>525.5</i>		18. TOTAL CORE RECOVERY FOR BORING	
8. DEPTH DRILLED INTO ROCK <i>117.4</i>				19. SIGNATURE OF INSPECTOR			
9. TOTAL DEPTH OF HOLE <i>117.4</i>							
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
			0.8' CORE LOSS, CAVITY				
61			V. FINELY XLVH, HD, FRAI BY DRILLING STAINED BY SOL			DD 61.5 CD 61.3 EL: 534.2	
62			DK GRAY, SHALEY			RUN #8 DRILL 9.8 REC 8.5 8.1 LEFT 0.4 LOST 1.5	
63			Green to gray to gray, interbed w/ whitish ss, numerous open b/p's				
64							
65			h/a frac				
66				84.3%	4		
67			SH GRAY TO GREEN, MOD MD TO MOD SOFT, THIN RD, SL FISSELE, (W).		BOX		
68			green, mod hd.				
69			1.3' CORE LOSS DIST FROM EL. 529.0 TO EL 526.7 REC. APPROX 1.0' OF SH, HIGHLY EXPANDED, IN THIS AREA.				
70							

ENG FORM 1836  
MAR 71

PREVIOUS EDITIONS ARE OBSOLETE.  
(TRANSLUCENT)

PROJECT

PATOKA LAKE D-64

HOLE NO.

C-142+00

DRILLING LOG		DIVISION		INSTALLATION		Hole No. C-142+00	
1. PROJECT		2. LOCATION (Coordinates or Station)		3. DRILLING AGENCY		4. HOLE NO. (As shown on drawing title and file number)	
5. NAME OF DRILLER		6. DIRECTION OF HOLE		7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF HOLE		10. SIZE AND TYPE OF BIT		11. DAYUM FOR ELEVATION SHOWN (TBM or AMSL)		12. MANUFACTURER'S DESIGNATION OF DRILL	
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		16. DATE HOLE	
17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR		20. REMARKS	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
			broken 0.2' LOST CORE Gr, sh, broken, redrilled.	100%		CD 70.7 EL 524.2 CD 71.2 EL 522.7 DD 71.3 RUN #9 (71.3 to 71.2) DRILL 0.0 REC 0.3 LEFT 0.0 LOST 0.0 RUN #10 (71.2 to 51.2) DRILL 9.7 REC 4.3 LEFT 0.6 LOST 4.8	
			4.8' LOST CORE DIST FROM EL 524.3 TO EL 515.2 REC 4.3' OF RECKEN SH IN THIS RUN. SH IS DK GRAY, W/ MAROON STAINING IN LOWER PORTIONS	47.2%	BOX 4		

DRILLING LOG			DIVISION		INSTALLATION		SHEET 9 OF 12 SHEETS	
1. PROJECT <u>Patoka Lake</u>					10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)					11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY					12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <u>C-142+00</u>					13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES	
5. NAME OF DRILLER					15. ELEVATION GROUND WATER		16. DATE HOLE	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.					17. ELEVATION TOP OF HOLE <u>595.5</u>		18. TOTAL CORE RECOVERY FOR BORING	
7. THICKNESS OF OVERBURDEN					19. SIGNATURE OF INSPECTOR			
8. DEPTH DRILLED INTO ROCK <u>117.4</u>								
9. TOTAL DEPTH OF HOLE <u>117.4</u>								
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g		
			Badly scoured by drilling			CD 80.3 EL: 515.2		
81						DD 80.9		
82			SH INTBD W/ FINE SS, NUMEROUS OPEN R/P'S 1" CR HO.			RUN # 11 DE'LL 10.4 REC <del>9.9</del> 10.0 LEFT 0.0 LOST <del>1.0</del> 1.0		
83						OVER DRILLED THIS RUN 1.0' GROUND CORE AWAY.		
84				90.9%				
85					5			
86					BOX			
87			1.0 CORE LOSS DIST FROM EL 510.3 to EL 505.8 REC 3.6' GRAYSH IN THIS ZONE, EARLY EATEN.					
88								
89								
90								

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(TRANSLUCENT)

PROJECT PATOKA LAKE D-66 HOLE NO. C-142+00

DRILLING LOG		DIVISION		INSTALLATION		SHEET 1 - OF 12 SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C-142+00</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE		STARTED COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE <i>505.5</i>		18. TOTAL CORE RECOVERY FOR BORING	
8. DEPTH DRILLED INTO ROCK <i>117.6</i>				19. SIGNATURE OF INSPECTOR			
9. TOTAL DEPTH OF HOLE <i>117.4</i>							

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
91			FAIRLY COARSELY BEDDED TRANSITION ZONE GRAY SH INTOED W/LS THIN BD, NUMEROUS OPEN R/P's, MGD NO.			CDP DD 91.3 EL: 504.2
92			broken			RUN # 12 DRILL 10.0' - REC 10.0' - LEFT 0.3' - LOST 0.0
93			open r/p		6	
			Thin bd.		BOX	
94			open r/p's	100%		
95						
96			VERY SHALEY			
97			LT GRAY-GRAY, M'CD HD TO HD, THIN TO M'CD BD, FINELY XLYN TO XLYN, SHALEY, 1/2 SHALEY IN PART, FOS, NUMEROUS SENS ON R/P's, NUMEROUS OPEN R/P's			
98			A/A BREAK IN CORE, PROBABLY MECHANICAL		6	
99			VERY SHALEY, SL STAINED, NUMEROUS OPEN R/P's		BOX	
100						

ENG FORM 836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.  
(TRANSLUCENT)

PROJECT PATOKA LAKE D-67 HOLE NO. C-142+00

Hole No. C-142+00

<b>DRILLING LOG</b>		DIVISION		INSTALLATION		SHEET 11 OF 12 SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DAYUM FOR ELEVATION SHOWN (TBM or BSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C-142+00</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE    STARTED    COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE <i>595.5</i>			
8. DEPTH DRILLED INTO ROCK <i>117.4</i>				18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE <i>117.4</i>				19. SIGNATURE OF INSPECTOR			

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
101			0.2' LOST CORE redrilled, tapered			CD 101.0 EL. 494.5
102						DD 101.3
103						RUN #13
104			OPEN R/P			DRILL 9.7
105			OPEN R/P LESS SH, NO CORE XLYN BELOW 109.4	97.7%		REC 8.6 9.5
106			OPEN R/P			LEFT 1.3
107			OPEN R/P			LOST 8.1 0.2
108			OPEN R/P's			
109			OPEN R/P harder vert frac, healed			
110			SH 0.5' CORE LOSS			CD 109.7 EL 495.6

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT

PATOKA LAKE

D-60

HOLE NO.

C-142+00



DRILLING LOG			DIVISION	INSTALLATION	SHEET 12 OF 12 SHEETS
1. PROJECT <i>Pataka Lake</i>			10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)			11. DAYUM FOR ELEVATION SHOWN (FSM or MSL)		
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <i>C-142+00</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE <i>595.5</i>		
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING		
			19. SIGNATURE OF INSPECTOR		

ELEVATION <small>a</small>	DEPTH <small>b</small>	LEGEND <small>c</small>	CLASSIFICATION OF MATERIALS (Description) <small>d</small>	CORE RECOVERY <small>e</small>	BOX OR SAMPLE NO. <small>f</small>	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) <small>g</small>
111					BOX 6	
			SCOURED BY DRILLING			DD 111.0
112				92.7%		RUN #14
						DRILL 6.4'
						REC <del>6.6</del> 6.4
						LEFT 0.8
						LOST <del>0.3</del> 0.5
113		SH	EX GRAY, MCD HQ, SL FISSILE, CCC WHITE INCLUSIONS, VERY COMPACT, NUMEROUS CORE SPINS		BOX 7	
114						
115						
116						
117						CO 116.6'
						EL: 478.9
						117.4 Bottom
118						

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

(TRANSLUCENT)

PROJECT T. T. L. LAKE D-69 HOLE NO. C-142+00

DRILLING LOG		DIVISION	INSTALLATION	Hole No. <u>C 143 T-0</u>
1. PROJECT <u>LAKE LAPEL</u>		<u>OHIO RIVER</u>	<u>LCU DIST</u>	SHEET <u>7</u> OF <u>5</u> SHEETS
2. LOCATION (Coordinates or Station) <u>14-+10 2.5 RT</u>			10. SIZE AND TYPE OF BIT <u>N10 2"</u>	11. DAY ON FOR ELEVATION SHOWN (TBM or MSL) <u>MSL</u>
3. DRILLING AGENCY <u>Continental Drilling Co.</u>			12. MANUFACTURER'S DESIGNATION OF DRILL <u>MSL</u>	
4. HOLE NO. (As shown on drawing title and file number) <u>C 143 T-00</u>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED <u>      </u> UNDISTURBED <u>      </u>
5. NAME OF DRILLER <u>D. Johnson</u>			14. TOTAL NUMBER CORE BOXES <u>3</u>	15. ELEVATION GROUND WATER <u>      </u>
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED <u>      </u> DEG. FROM VERT.			16. DATE HOLE STARTED <u>5/13/77</u>	COMPLETED <u>5/14/77</u>
7. THICKNESS OF OVERBURDEN <u>0.0</u>			17. ELEVATION TOP OF HOLE <u>529.7</u>	
8. DEPTH DRILLED INTO ROCK <u>45.8</u>			18. TOTAL CORE RECOVERY FOR BORING <u>82.5%</u>	
9. TOTAL DEPTH OF HOLE <u>45.8</u>			19. SIGNATURE OF INSPECTOR <u>A. Bartlett</u>	

ELEVATION <small>a</small>	DEPTH <small>b</small>	LEGEND <small>c</small>	CLASSIFICATION OF MATERIALS (Description) <small>d</small>	% CORE RECOVERY <small>e</small>	BOX OR SAMPLE NO. <small>f</small>	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) <small>g</small>
		SS	Calc. ss; Lam, Hdt Dk grey			Run #1 D.L.C. 10.0 Rec 4.9 lost 0.4 lost 4.2 - 4.7
	1	SH	Lam, Dk grey; med ss Pan. mod - d; v. bedl. bottom pyrite nodules			
	2					
	3	IC	Greenish grey; med ss mod - d; v. bedl. bottom pyrite nodules			
	4		Loss dist 0.7 - 9.6	51%	BOX 1	
	5	SH	Greenish grey; Dk grey mod - d; v. bedl. bottom pyrite nodules			Core loss due mostly to drilling action; too much water pressure; drilling too slowly; new bit not cutting; insufficient air pressure
	6					
	7					
	8					
	9					
	10					

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MAR 71 (TRANSLUCENT)

PROJECT PaToka Lake P-71 HOLE NO. 6-1724-20



Hole No. **C145+00**

<b>DRILLING LOG</b>	DIVISION <b>OHIO RIVER</b>	INSTALLATION <b>LCU DIST</b>	SHEET <b>13</b> OF <b>5</b> SHEETS
1. PROJECT <b>Patoka Lake</b>		10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL	
4. HOLE NO. (As shown on drawing title and file number) <b>C145+00</b>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	13. DISTURBED <input type="checkbox"/> UNDISTURBED <input type="checkbox"/>
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE	16. STARTED <input type="checkbox"/> COMPLETED <input type="checkbox"/>
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE <b>529.7</b>	
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING <b>5</b>	
		19. SIGNATURE OF INSPECTOR	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			Base of (w) el. 707			Run #4
	31		sl. shaley			Drill 9.4
			shaley			Rec 7.55
	32		continuous open vert frac.			Loss 0.3
			sl. spin			lost 0.65
	33		highly frac 0.1' core loss		Box 2	
	34			93%		
	35		shaley zone			
	36		0.15' lost core, mud seam wash out			
			very shaley			
	37		shaley bkn, sl core spin		Box 3	
			coarsely xlyn			
	38		0.1' core loss, shaley zone			
			or a bit			
	39	LS	Tan-gray to gray, fd, med to thick bd, fd, occ shaley lam, -ss, very finely xlyn			
	40		Crust fragments, zone of .05' lost core			100% 10.9

DRILLING LOG		DIVISION <u>CHIEF ENGINEER</u>		INSTALLATION <u>LOW POINT</u>		Hole No. <u>C142+00</u>	
1. PROJECT <u>PATOKA LAKE</u>		10. SIZE AND TYPE OF BIT		11. DAYUM FOR ELEVATION SHOWN (TBM or ASL)		SHEET <u>5</u> OF <u>5</u> SHEETS	
2. LOCATION (Coordinate or Station) <u>1-00</u>		12. MANUFACTURER'S DESIGNATION OF DRILL		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED <input type="checkbox"/> UNDISTURBED <input type="checkbox"/>	
3. DRILLING AGENCY		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		16. DATE HOLE	
4. HOLE NO. (As shown on drawing title and file number) <u>C142+00</u>		17. ELEVATION TOP OF HOLE <u>522.7</u>		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR	
5. NAME OF DRILLER		18. DATE HOLE		STARTED		COMPLETED	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT		7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK		9. TOTAL DEPTH OF HOLE	
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			open b/p, shaley, core spin stained 0.2' above b/p			Run # 5	
			continuous cal mended vert yellow stained			Drill 10.0	
			sty, open			Rec 6.25	
			shaley			Core 3.1	
			h/a frac, tight	99%		Lost 0.05	
			yellow stained around b/p		BOX 3		
			shaley b/p, open				
			h/a frac, broken				
			core spin				
		SH	DK. gray, med soft, thin bed, sil. fissile, occ. pyrite inclusions				
			core spin				
			LEFT 3.1' IN HOLE				
			BOTTOM OF HOLE				

ENG FORM 1836  
MAR 71

(TRANSLUCENT)

PROJECT	
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0-75

HOLE NO.

DRILLING LOG		DIVISION		INSTALLATION		SHEET 2 OF 8 SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C 144+05</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		16. STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			11.4 - 12.5	100		
473.0		SH	12.5 - 14.6 mottled green to grey ss, med. Hd - soft; silty, fine grained, no nodules; some thin plates of shale, partial core recovered	100	Box 1	Run #2 Drill 3.4 Rec 3.2 ✓ Left 0.2 Lost 0.0
			14.6 - 15.3 ss sand, Hd.	100		EL 469.7 CA 15.9
			15.3 - 16.0 ss sand, Hd.	100		Run #3 Drill 10.0 Rec 10.2 ✓ Left 0.0 Lost 0.0
469.0		SS	16.0 - 17.0 Thin - 27.0 ft. fine grained, med. to coarse, thin - thick bedded, med. clay ss, some thin plates of shale, partial core recovered	100	Box 2	Run #4 Drill 10.0 Rec 10.2 ✓ Left 0.0 Lost 0.0
			17.0 - 18.0 Thin - 27.0 ft. fine grained, med. to coarse, thin - thick bedded, med. clay ss, some thin plates of shale, partial core recovered	100		
			18.0 - 19.0 Thin - 27.0 ft. fine grained, med. to coarse, thin - thick bedded, med. clay ss, some thin plates of shale, partial core recovered	100		
			19.0 - 20.0 Thin - 27.0 ft. fine grained, med. to coarse, thin - thick bedded, med. clay ss, some thin plates of shale, partial core recovered	100		







DRILLING LOG		DIVISION		INSTALLATION		Hole No. C 177703	
1. PROJECT		2. LOCATION (Coordinates or Station)		10. SIZE AND TYPE OF BIT		SHEET 5 OF 6 SHEETS	
3. DRILLING AGENCY		4. HOLE NO. (As shown on drawing title and file number)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		12. MANUFACTURER'S DESIGNATION OF DRILL	
5. NAME OF DRILLER		6. HOLE NO. (As shown on drawing title and file number)		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES	
7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK		15. ELEVATION GROUND WATER		16. DATE HOLE	
9. TOTAL DEPTH OF HOLE		17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling runs, water loss, depth of weathering, etc., if significant)	
	41.0	SS	100% open 3/4 on 2nd parting				
	42.0		100% open 3/4 on 2nd parting				
	43.0		100% open 3/4 on 2nd parting				
	44.0		100% open 3/4 on 2nd parting				
	45.0		100% open 3/4 on 2nd parting				
	46.0		100% open 3/4 on 2nd parting				
	47.0		100% open 3/4 on 2nd parting				
	48.0		100% open 3/4 on 2nd parting				
	49.0		100% open 3/4 on 2nd parting				
	50.0		100% open 3/4 on 2nd parting				
	51.0		100% open 3/4 on 2nd parting				
	52.0		100% open 3/4 on 2nd parting				
	53.0		100% open 3/4 on 2nd parting				
	54.0		100% open 3/4 on 2nd parting				
	55.0		100% open 3/4 on 2nd parting				
	56.0		100% open 3/4 on 2nd parting				
	57.0		100% open 3/4 on 2nd parting				
	58.0		100% open 3/4 on 2nd parting				
	59.0		100% open 3/4 on 2nd parting				
	60.0		100% open 3/4 on 2nd parting				
	61.0		100% open 3/4 on 2nd parting				
	62.0		100% open 3/4 on 2nd parting				
	63.0		100% open 3/4 on 2nd parting				
	64.0		100% open 3/4 on 2nd parting				
	65.0		100% open 3/4 on 2nd parting				
	66.0		100% open 3/4 on 2nd parting				
	67.0		100% open 3/4 on 2nd parting				
	68.0		100% open 3/4 on 2nd parting				
	69.0		100% open 3/4 on 2nd parting				
	70.0		100% open 3/4 on 2nd parting				
	71.0		100% open 3/4 on 2nd parting				
	72.0		100% open 3/4 on 2nd parting				
	73.0		100% open 3/4 on 2nd parting				
	74.0		100% open 3/4 on 2nd parting				
	75.0		100% open 3/4 on 2nd parting				
	76.0		100% open 3/4 on 2nd parting				
	77.0		100% open 3/4 on 2nd parting				
	78.0		100% open 3/4 on 2nd parting				
	79.0		100% open 3/4 on 2nd parting				
	80.0		100% open 3/4 on 2nd parting				
	81.0		100% open 3/4 on 2nd parting				
	82.0		100% open 3/4 on 2nd parting				
	83.0		100% open 3/4 on 2nd parting				
	84.0		100% open 3/4 on 2nd parting				
	85.0		100% open 3/4 on 2nd parting				
	86.0		100% open 3/4 on 2nd parting				
	87.0		100% open 3/4 on 2nd parting				
	88.0		100% open 3/4 on 2nd parting				
	89.0		100% open 3/4 on 2nd parting				
	90.0		100% open 3/4 on 2nd parting				
	91.0		100% open 3/4 on 2nd parting				
	92.0		100% open 3/4 on 2nd parting				
	93.0		100% open 3/4 on 2nd parting				
	94.0		100% open 3/4 on 2nd parting				
	95.0		100% open 3/4 on 2nd parting				
	96.0		100% open 3/4 on 2nd parting				
	97.0		100% open 3/4 on 2nd parting				
	98.0		100% open 3/4 on 2nd parting				
	99.0		100% open 3/4 on 2nd parting				
	100.0		100% open 3/4 on 2nd parting				

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PROJECT Hole No. C 177703

DRILLING LOG		DIVISION		INSTALLATION		SHEET 6 OF 8 SHEETS	
1. PROJECT <i>PATOKA Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C144+05</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.				16. DATE HOLE		STARTED    COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH SO. 2 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVER- Y e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
	51		LA open dip on strike, parting				
	52	SS					
	53						
	54		iron bucket across river				
	55						
	56	LS	Zone of fine v. sh. ls. 57.1-57.6 sandstone discontinuity		Box 4	EL 429.7 DD 56.0 - 1055.0	
	57		thin sh. ls. with thin clay parting to thin sh. ls. with thin clay parting			Run H 7 Drill 10.0 rec 10.0 ✓ Lose 0.0 Lost 0.0	
	58		thin sh. ls. with thin clay parting				
	59		thin sh. ls. with thin clay parting				
413.7		LS	thin sh. ls. with thin clay parting	100%			

ENG FORM 1836  
MAR 71

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PROJECT

*PATOKA Lake*

HOLE NO.

*D-80*

*C144+05*

Hole No. C144+0.5

DRILLING LOG		DIVISION	INSTALLATION	SHEET 7 OF 8 SHEETS
1. PROJECT <i>Patoka Lake</i>		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or HGL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <i>C 144+0.5</i>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE STARTED COMPLETED		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION 50.2	DEPTH 6	LEGEND 6	CLASSIFICATION OF MATERIALS (Description) 4	% CORE RECOV- ERY 6	BOX OR SAMPLE NO. 1	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) 8
		LS	LS 30% clay, mass congl. of chert, fl. fossils.			
61.0			thin bedded cross congl. along fault			
			break across core		21.45	
62			thin bedded cross congl.		22.95	
			thin bedded along shale seam			
63			some of several shales thin bedded, partings of chert iron.		Box 5	
			thin bedded along shale seam			
64			thin bedded cross congl.			
			thin bedded cross congl.			
65			thin bedded cross congl.			
			thin bedded along shale seam small chert nodules congl. along shale seam			
66			thin bedded along thin shale seam thin shale chert zone			
67			thin bedded cross congl.			
70.7			thin bedded cross congl.	96.2		
72			thin bedded cross congl.			
			thin bedded cross congl.			
73			thin bedded cross congl.			
74.7			thin bedded cross congl.			

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PROJECT

Patoka Lake

D-81

HOLE NO.

C144+0.5

DRILLING LOG		DIVISION		INSTALLATION		HOLE NO. 11705		SHEET 8 OF 8 SHEETS	
1. PROJECT <b>Patoka Lake</b>				10. SIZE AND TYPE OF BIT					
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)					
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL					
4. HOLE NO. (As shown on drawing title and file number) <b>C144-05</b>				13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		DISTURBED		UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE		STARTED		COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE					
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING					
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR					
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)			
	70.0	54	material of upper 20 ft. of hole, mod soft, thin bedded; poorly cemented.						
	71		open B/ds 700 numerous to log base 0.03-0.3						
	72		0.5 ft. core loss soft, remolded clay with loss LA core, partial remissing						
412.85			lost 0.25 in hole			CORRECTION DD 72.8 EL 412.85			
	73		bottom of hole						









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**PROJECT**

HOLE NO.

HOLE NO

DRILLING LOG		DIVISION	INSTALLATION	HOLE NO.	SHEET OF 6 SHEETS	
1. PROJECT			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)			13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN			
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE			
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	51	SH	mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			Run 59 Drill 50 Rec 525' ± Lost 0.2 Lost 0.0
	52		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			Partial drill water return 60% ±
	53		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty	100%		Reel Drill water @ 52.5 Grey Drill water @ 52.9 Red Drill water @ 53.0
	54		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	55		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	56		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	57		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	58		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	59		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	60		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	61		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	62		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	63		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	64		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	65		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	66		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	67		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	68		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	69		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	70		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	71		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	72		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	73		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	74		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	75		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	76		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	77		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	78		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	79		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	80		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	81		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	82		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	83		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	84		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	85		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	86		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	87		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	88		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	89		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	90		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	91		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	92		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	93		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	94		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	95		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	96		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	97		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	98		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	99		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			
	100		mod. soft to med. hard massive to bedded fine to medium grained rock locally weathered, some slightly cherty, some silty			

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PROJECT

D-88

HOLE NO.

4147



DRILLING LOG		DIVISION		INSTALLATION		SHEET OF 5 SHEETS	
1. PROJECT P. Lake				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) C156+20				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE		STARTED COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH To, b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			0.2 core loss dist 9.4 - 10.95			Run #7 Drill 9.65 rec 9.451 lost 0.4 lost 0.2	
1.0		LS	alternating shales, highly weathered, red-soft, stained, water washed				
			100 weathered shale, small 0.0175 bag on edge Highly weathered, some mud, 11.3-11.5 weathered to buff or white, 11.5-12.5				
2.0		LS	open & closed, HA, iron 9T. iron 9T, 11.5-12.5 open bottom 0.5-1T				
3.0			Limestone, Hd, 11.5-12.5 Fe, manganese from SL weathered to an weathered L, iron - TAN, etc. 11.5-12.5 11.5-12.5	97.9	Box 1	11.5-12.5 edges due to drilling section 4 type of drill used	
4.0			core 11.5-12.5, stained 11.5-12.5				
5.0			2000 2/10; SL stained				
6.0			L. H, iron 9T, 11.5-12.5 SL weathered, stained L. H, iron 9T, 11.5-12.5 SL weathered, stained L. H, iron 9T, 11.5-12.5 SL weathered, stained				
7.0			core 11.5-12.5, stained 11.5-12.5				
8.0			core 11.5-12.5, stained 11.5-12.5				
9.0			core 11.5-12.5, stained 11.5-12.5				
10.0			core 11.5-12.5, stained 11.5-12.5				
11.0			core 11.5-12.5, stained 11.5-12.5				
12.0			core 11.5-12.5, stained 11.5-12.5				
13.0			core 11.5-12.5, stained 11.5-12.5				
14.0			core 11.5-12.5, stained 11.5-12.5				
15.0			core 11.5-12.5, stained 11.5-12.5				
16.0			core 11.5-12.5, stained 11.5-12.5				
17.0			core 11.5-12.5, stained 11.5-12.5				
18.0			core 11.5-12.5, stained 11.5-12.5				
19.0			core 11.5-12.5, stained 11.5-12.5				
20.0			core 11.5-12.5, stained 11.5-12.5				

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(TRANSLUCENT)

PROJECT

PATOKA LAKE

D-90

HOLE NO.

C156+20

UNCLASSIFIED

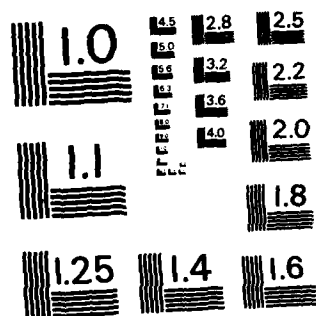
PATOKA LAKE FOUNDATION REPORT BOOK 4 APPENDIX D  
CONTRACTOR DRILL LOGS(U) ARMY ENGINEER DISTRICT  
LOUISVILLE KY S BARTLETT ET AL. APR 83

24

**F/G 8/7**

NL

A 10x10 grid of squares, with the top-left square missing.



MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A



DRILLING LOG		DIVISION		INSTALLATION		SHEET 3 OF 5 SHEETS	
1. PROJECT Patoka Lake				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) C156420				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE STARTED COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR			

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	20.0		Open shaley s/p			
	21.0		100% L.A. break, SL (w)			Run # 8 Drill 8.4 R.C. 8.5 C.R.T. 0.2 Lost 0.1
	22.0		100% (w) hor. 2 break, SL sol?			
	23.0		100% L.A. break, (w); SL rock spin			
	24.0		100% hor. 2 break, (w); SL sol?			
	25.0		SL rock spin, 100% (w) s/p; SL sol?			
	26.0		SL rock spin, 100% (w) s/p; SL sol?			
	27.0		SL rock spin, 100% (w) s/p; SL sol?			
	28.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	29.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	30.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	31.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	32.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	33.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	34.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	35.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	36.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	37.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	38.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	39.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	40.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	41.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	42.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	43.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	44.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	45.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	46.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	47.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	48.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	49.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			
	50.0		SL rock spin, 100% hor. 2 break; SL (w) s/p; MND RTLS			

DRILLING LOG		DIVISION		INSTALLATION		SHEET 4 OF 5 SHEETS	
1. PROJECT Patoka Lake				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) C156+80				13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES	
5. NAME OF DRILLER				15. ELEVATION GROUND WATER		16. DATE HOLE	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
7. THICKNESS OF OVERBURDEN				19. SIGNATURE OF INSPECTOR			
8. DEPTH DRILLED INTO ROCK							
9. TOTAL DEPTH OF HOLE							
ELEVATION a	DEPTH 30.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			see spec in spec, L.A. sub spec (-)				
	31.0		fine sand on soil L.A. break; even, some clay, etc.				
			100 hor. 2, break (-); HMA 87.2				
			cor spin on (-) 31.2				
			100 sol. HMA, opening; grout track, some clay filling				
	32.0		sl. cor spin				
			100 hor. 2 <sup>BP</sup> (-); HMA 87.2	100%			
	33.0		sl. cor spin along 100 hor. 2 even, (-); sl. clay, etc.				
			100 hor. 2 break, (-), sl. clay		B-0A 3		
	34.0						
			100 hor. 2 break, sl. (-)				
			clay filling of hor. 2 sol. cavity				
	35.0		100 HMA, 97.2; sl. sol; (-); small clay filling some clay on cor walls small clay				
	36.0		base of weathering & staining; grey colour				
	37.0						
			water washed, split along 0.15; drop on, sl. red mud in areas				
	38.0		LS, dt. 500, - 2 A. top; sign 814	100%			
			HA, open gr. 100, stained - pur; occ. carbonate secondary calc. texture sand, etc.				
			1/2 core missing				
	39.0		LS, dt. 500				
			100 cor. broken, 1/2 missing dt. 500; fast; mod. rd, thin rd,	100%			
	40.0	SA					

DRILLING LOG		DIVISION		INSTALLATION		SHEET OF 5 SHEETS	
1. PROJECT <i>Potomac Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C 156+20</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED    COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			

ELEVATION a	DEPTH 40.5 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
492.1			<i>Mudstone 3/4 39.5-40.5 limy ss, calc, pyrite etc</i>			<i>CD 40.5 EL 492.1</i>
	1.0					
	2.0		<i>Left 1.6 feet of core in hole</i>			
	3.0					
488.95						<i>DD 43.65</i>
	4.0					<i>Hole water tested 4/22/76, set packer @ 12 ft.: 0.024 ft in 5 minutes</i>
	5.0					
	6.0					
	7.0					
	8.0					
	9.0					
	10.0					
	11.0					
	12.0					
	13.0					
	14.0					
	15.0					
	16.0					
	17.0					
	18.0					
	19.0					
	20.0					
	21.0					
	22.0					
	23.0					
	24.0					
	25.0					
	26.0					
	27.0					
	28.0					
	29.0					
	30.0					
	31.0					
	32.0					
	33.0					
	34.0					
	35.0					
	36.0					
	37.0					
	38.0					
	39.0					
	40.0					
	41.0					
	42.0					
	43.0					
	44.0					
	45.0					
	46.0					
	47.0					
	48.0					
	49.0					
	50.0					
	51.0					
	52.0					
	53.0					
	54.0					
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	67.0					
	68.0					
	69.0					
	70.0					
	71.0					
	72.0					
	73.0					
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	86.0					
	87.0					
	88.0					
	89.0					
	90.0					
	91.0					
	92.0					
	93.0					
	94.0					
	95.0					
	96.0					
	97.0					
	98.0					
	99.0					
	100.0					

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(TRANSLUCENT)

PROJECT *Potomac Lake* HOLE NO. *D-93 C156+80*

<b>DRILLING LOG</b>		DIVISION 0110	INSTALLATION Louisville District	SHEET 1 OF 3 SHEETS
1. PROJECT Duck Lake		10. SIZE AND TYPE OF BIT NX		
2. LOCATION (Coordinates or Station) 7+78.147 RT		11. DAYUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3. DRILLING AGENCY Continental Drilling Co.		12. MANUFACTURER'S DESIGNATION OF DRILL CP-65		
4. HOLE NO. (As shown on drawing title and file number) C 157478		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN —		DISTURBED —
5. NAME OF DRILLER D. Johnson		14. TOTAL NUMBER CORE BOXES —		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER ?		
7. THICKNESS OF OVERBURDEN 13.0		16. DATE HOLE 10/12/76		STARTED 10/14/76
8. DEPTH DRILLED INTO ROCK 61.7		17. ELEVATION TOP OF HOLE 561.9		
9. TOTAL DEPTH OF HOLE 74.9		18. TOTAL CORE RECOVERY FOR BORING 74.4%		
		19. SIGNATURE OF INSPECTOR J. H. H. H.		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		DB				Drilled to 12.0 ft w/rock bit. 1 set 3 in. casing
	1					
	2					W.L. 10/14/76 AM - 14.1 10/14/76 PM - 7.6 (approx.) 10/14/76 after drilling
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10.0					

Water Test  
10/14/76, set packer  
@ 15.0 ft. SPSS

0.05	in	1	in
0.1	in	2	in
0.15	"	3	"
0.2	"	4	"
0.3	"	5	"

Hole No. 415 1778

DRILLING LOG		DIVISION		INSTALLATION		SHEET 2 OF 8 SHEETS	
1. PROJECT <b>Patoka Lake</b>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (YSM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>C 157+78</b>				13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE		16. DATE HOLE	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE <b>561.9</b>		18. TOTAL CORE RECOVERY FOR BORING	
8. DEPTH DRILLED INTO ROCK				19. SIGNATURE OF INSPECTOR			
9. TOTAL DEPTH OF HOLE							
ELEVATION a	DEPTH 10'- b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
		OB					
548.9	13	SH	<b>TOP ±</b> Start coring mod soft; past stained shps mod soft; thin bed; SS bed. in bedded ss & sh vert 97, 2, 25 SH bed.			Run # 1 Drill 4.3 Rec 3.8 ✓ Left 0.5 Lost 0.0	
	14	SS	Buff, fine grained; Fe stained; mod Hd; mod well cemented; Thin bed, some x bed; occ sh lam; brown.	100%			
	15		broken 13.55-15.7 vert opening				
	16		broken thin sh lam broken, possible vert frac or 97				
	17	SH	interbedded ss & sh 16.8-17.0; sh broken water channel			CD H.B. EL 545	
	18		OK soft; interbedded w/ num. st. soft ss lam; mod Hd; thin bed - lam; shales sh; some organic matter			PB 173	
	19	SS	sh broken, see 6#3 Transition sh & ss LT soft, mod cemented, w/ fine grain, small sil. ind; occ. mod sh lam, thin bed; occ past staining	95%		Run # 2 Drill 9.5 Rec 9.3 ✓ Left 0.2 Lost 0.5	

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PROJECT

Patoka Lake

D-95

HOLE NO.

C 157+78

Hole No. C15778

DRILLING LOG		DIVISION		INSTALLATION		SHEET 3 OF 6 SHEETS	
1. PROJECT <b>Patoka Lake</b>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (BSN or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>C15778</b>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		16. STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE <b>561.9</b>			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH 20. b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			Fe concentration in SS, rust brown				
			Fe concentration in SS, rust brown				
	21						
	22						
	23	SS	mottled LTT dk grey; congl. num. sh lam; med mod. hd; v. fine grain; med well cemented, iron lam w/ some x-lam & trace of beding.		Box 1		
	24						
	25						
537.35			distinct repeated contact				
	25	IC	core bedded brownish grey; soft; num. silt; v. silty, friable.				
			badly broken, 0.5 ft ± core loss; core spin				
	26		HA silt				
			L.A. silt				
			broken				
527.3			badly broken removing from bbl, possible core loss				
	27	SS	shaly SS; no beding; small nodules on core edge				
			Thin silty sh seam				
	28		granitic grey; fine grained; thin bedded; calcareous; med. hd; porous	100%	20.6		
	29	SH	Massive - heavy; v. poorly cemented; shales v. rapidly; v. badly broken, see nodules				
			v. sandy & badly broken 28.5 - 32.9; cannot discern beding; some structural features; possible core loss				
	30.3						

ENG FORM 1836  
MAR 71

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PROJECT

Patoka Lake

D-96

HOLE NO.

C15778

DRILLING LOG		DIVISION		INSTALLATION		Hole No. <u>C 157-78</u>	
						SHEET <u>4</u> OF 8 SHEETS	
1. PROJECT <u>Patoka Lake</u>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DAYUM FOR ELEVATION SHOWN (TBM - MEI)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <u>C 157-78</u>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES	
5. NAME OF DRILLER				15. ELEVATION GROUND WATER		16. DATE HOLE	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				17. ELEVATION TOP OF HOLE <u>561.9</u>		18. TOTAL CORE RECOVERY FOR BORING	
7. THICKNESS OF OVERBURDEN				19. SIGNATURE OF INSPECTOR			
8. DEPTH DRILLED INTO ROCK							
9. TOTAL DEPTH OF HOLE							

ELEVATION a	DEPTH b, c	LEGEND d	CLASSIFICATION OF MATERIALS (Description) e	CORE RECOVERY f	BOX OR SAMPLE NO. g	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) h
31						
32						
33			Limy zone; red, green & blue; red & blue; thin bedded; shale & limy; badly broken			
34			badly broken, shaly zone			
35			badly broken zone, shaly zone			
36			broken			
37			HA. 100% broken across core, partial core missing			
38			core partially broken 159-163			
39			core broken			
40			vert 97 on one edge			
41			closed			
42			installed, 100% 97			
43			open mostly; core current			
44			partially clogged filled			
45			100% 97 on one edge			
46			LA 100% broken across core			

561.9  
15.2  
546.7

EL 546.7  
CD 15.2

DD 15.3

Run # 4  
Drill 8.95  
RCL 9.05  
Left 0.0  
Lost 0.0

Trouble of misaligned  
BSC & Hole;

100%

Hole No. C15778

DRILLING LOG		DIVISION		INSTALLATION		SHEET 5 OF 8 SHEETS	
1. PROJECT <b>Patoka Lake</b>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>C15778</b>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input checked="" type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE		STARTED    COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE <b>561.9</b>		18. TOTAL CORE RECOVERY FOR BORING	
8. DEPTH DRILLED INTO ROCK				19. SIGNATURE OF INSPECTOR			
9. TOTAL DEPTH OF HOLE							

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
			several Fe-stained iron ore; 14A.			
	41	SH	soft; greenish grey; 70% bd - cum; slates rapidly; poorly cemented; HA iron break across ore; sandy Highly broken & crumbly 40.4- 42.5; possible core loss	100%		
	42		rock spin & broken edges		92.5%	
	43		sl iron face near one edge badly broken; possibly some fine iron face on core edge			Run #5 drilling in misaligned hole; excessive vibration.
	44		core V. badly broken; possibly some weathered limy material		Box	
	45		LS. Bulk; weathered; mud seen on lower edge		3	DD 44.25 dco & LS 1265
	46		0.85 ft core loss; possibly due to drilling action intended piece of LS.	0.0		Run #5 Drill 0.85 Rec 0.0 Left 0.0 Lost 0.85 DD dco 45.1 & LS 168
	47		core spin core reduced, redrilled			Run #6
	48		several iron, vent holes of fines; calcite filled continuous			Drill 9.75 Rec 9.75 ✓ Left 0.0 Lost 0.0
	49	LS	sl rock spin on iron ore break; shaly stylolite; mashed	100%		
	50		Tan - Grey; fossil; XTLym, thick bd - missing; Hcl; weathered to sl. 147;			
	51		sl iron, L.A. break across core			
	52		healed iron vent fines; closed; calc. & XTL			



Hole No. C15710

DRILLING LOG		DIVISION	INSTALLATION		SHEET 6 OF 8 SHEETS	
1. PROJECT <b>PaToKa Lake</b>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN			
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE			
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE <b>501.9</b>			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	50.0		1st L.A. break across core			
			1st break on core edge			
			shale seam, 1st on stylolite; washed away; cuttings on surfaces			
51			core spin on stylolite			
			shale seam, washed & disrupted; cuttings on surfaces			
			shale seam, core washed; broken; stylolite			
52			base of staining & weathering 52.1			
			1st horiz break			
			core spin			
53			0 marked staining in frequent, below 52.1			
			2d core spin on horiz break (3/p)			
54			1st			
			weathered 1st L.A. break across core, MN XTLs; fossils in relief			
			2d core spin			
			closed vertical trace;			
			2d weathered, break 4.			
55			BP break across shale seam			
			2d water washed 54.85, red shale seam			
			coston change 54.85, red shale seam			
			un weathered			
56			1st water washed 57.05-57.2			
			1st water washed 57.05-57.2			
57			1st water washed 57.05-57.2			
			1st water washed 57.05-57.2			
58			1st water washed 57.05-57.2			
			1st water washed 57.05-57.2			
59			1st water washed 57.05-57.2			
			1st water washed 57.05-57.2			
60			1st water washed 57.05-57.2			

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PROJECT

PaToKa Lake

D-99

HOLE NO.

C15710

Hole No. C 157718

<b>DRILLING LOG</b>		<b>DIVISION</b>	<b>INSTALLATION</b>	<b>SHEET 7</b> <b>OF 8 SHEETS</b>
1. PROJECT <i>Pato Lake</i>		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)		11. DAY ON FOR ELEVATION SHOWN (YEN - HSL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <i>C157718</i>		13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE STARTED _____ COMPLETED _____		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE <i>561.9</i>		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION •	DEPTH 60.0 •	LEGEND •	CLASSIFICATION OF MATERIALS (Description) •	% CORE RECOV- ERY •	BOX OR SAMPLE NO. •	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) •
501.45			Thin mud seam, partial - 11 shale seam, Ten feet (W) 47.7m - 48 SL 100' break, mud smeared			
61			Zone of 2.1 ft core Loss; mud filled seam; recovered 0.5 ft of gravel; 0.2 ft of soft mud; 4.05 ft of (W) LS; many rock spins on bottom			
62						
63						muddy on 63.5 no tool drop, full drill
498.6			smooth LA surface, SL note span			
64						
65			horiz irr, clean break across core broken to 45 ft from top irr surface 8 ft from top irr (W) positive sides of hole core loss SL core spin irr break along shale seam, hole		Box 4	CO 64.6 64.85 (497.3)
66			irr horiz break along shale seam healed, HA face; closed; stained			hole caved in before starting run #8; washed
67			Healed HA face; closed stained			Run #8 D.L. 10.05 R.C. 6.2 ✓ Left 4.1 Lost 0.0?
68			irr break to 100' core box			hole caved to 63.0 ft after end of run #8
			irr break horiz break across core 67.38 - 67.6, 100 ft			
			SL gray, shales b.d., calc; 4' mud soft, face. thin - mud bed			
			core broken			
			mod - 45' core; loss; mud 4 ft mod bed, clay, unweathered irr LA broken core along shale seam			SL 60.0 ft; LS 60.0 ft; from in 69.5 ft drill
			irr closed to 97, partially healed			
			irr LA break broken along shale seam			

<b>DRILLING LOG</b>		<b>DIVISION</b>	<b>INSTALLATION</b>	<b>SHEET 8 OF 8 SHEETS</b>
1. PROJECT <i>Patoka Lake</i>			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL	
4. HOLE NO. (As shown on drawing title and file number) <i>C157+78</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER	
7. THICKNESS OF OVERBURDEN			16. DATE HOLE	
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE <i>561.9</i>	
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING	
			19. SIGNATURE OF INSPECTOR	

ELEVATION a	DEPTH 70.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			core often thin shaley zone			
			broken contact			
491.1	71	SH	Dk grey; thin bd; sl. silty; mod Hd; occ pyrite K75;			C1 70.8 EL 491.1
	72					
	73		Left			
	74					rod checked to 73.7 ft. hole caved in again to 63.0 ft
	75		bottom of hole 79.9			
	76					
	77					
	78					



DRILLING LOG		DIVISION		INSTALLATION		SHEET 2 OF 7 SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C152+45</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED <input type="checkbox"/> UNDISTURBED <input type="checkbox"/>	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		16. STARTED <input type="checkbox"/> COMPLETED <input type="checkbox"/>	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
9. SIGNATURE OF INSPECTOR							

ELEVATION a	DEPTH 10' b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			pyrite nodules on core edge stained pyrite nodules occur rare very stained gt Transition zone, high sand content			Run #1 Drill 6.85 Rec 6.75 ✓ Left 0.1 Lost 0.0
	21		Zone of v few shale lam;			
	22		intersect partially filled grout hole; partial core missing core spin	100%		
			pure ss bd; 2 vert closed stained gts			
	23	SS	LT-Dk grey; num sh dk grey sh lam, lam - thin bed, med Hd - Hd; v fine grain; well cemented; SL (w)			
	24		20' of v few sh and lam; (w)			
			HA. 100 gt; partially grout sealed, partially open, (w); stained			
	25		bottom			
		SS	Thin LT grey; med grain; Thin - med bed, fine grain; Hd well cemented, un (w), occ sh lam w/ plant frags			CD DD 25.5 25.4 26.00 F
	26					Run #2 Drill 10.0 Rec 9.6 ✓ Left 0.0 Lost 0.5 ✓
	27	SH	Dk grey; num LT grey SS lam; lam; med soft - med Hd;	95%		
	28					
	29	IC	core reduced Greenish grey; soft - v. soft; badly water washed, poorly cemented; no beding beds, broken, crumbly 0.2 ft core loss v. soft; badly broken, crumbly;			
	30.0					

D-103

DRILLING LOG		DIVISION		INSTALLATION		SHEET 3 OF 7 SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C158+45</i>				13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.				16. DATE HOLE		STARTED    COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING		%	
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR			

ELEVATION a	DEPTH 30.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVER- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			<i>Silt</i> <i>Zone of num. nodules, calc</i> <i>Greenish gray; med Hd, well-</i> <i>cemented, thin-med bd; sl calc</i> <i>upper 1/2 in 0.5 sec, sh zone</i>			
			<i>sandy lam zone.</i> <i>Trans. lam zone, soft-med soft</i> <i>mottled green &amp; reddish tan</i>			
530.7			<i>broken, soft zone, beveled arms,</i> <i>hard on; soft; no bdng;</i> <i>poorly cemented</i> <i>broken &amp; crumbly</i> <i>0.3 ft core loss</i>			
			<i>Greenish gray below 140</i> <i>sl harder</i>			
			<i>badly broken</i>			<i>DD &amp; CD 35.5    EL 530.7</i>
			<i>Trans. ss zone, greenish gray,</i> <i>sandy, med Hd, calc</i>			<i>Run #3</i> <i>Drill 10.0</i> <i>ROC 9.45</i> <i>Left 0.55</i> <i>Lost 0.0</i>
			<i>Shale zone w/ ss lam</i> <i>pure ss zone, 0.5 sec</i> <i>pure ss zone, 0.5 sec</i>	100%		
		SS	<i>0.5 sec; lam w/ num</i> <i>sh lam; sl (w); med soft;</i> <i>fine grain.</i>			
40.0						

DRILLING LOG		DIVISION		INSTALLATION		SHEET 4 OF 7 SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C158+45</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE STARTED COMPLETED			
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH 40.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
	41		open stained gt, vert		Box 2		
	42		stained (low) zone soft shale seams				
	43		open stained heavily gt, vert			Corrected depth from core in next run	
	44		broken water washed 43.55-43.9				
	45	SH	reduced sl water washed 43.9-44.95- OK grey; occ ss lam; med soft; thin bed-lam, shales			44.95 CU	
	46		v. badly broken; water washed; reduced; partial core missing; possible core loss			DO 45.5 EL 521.25	
	47		soft, clayey distinct contact nightly (w) (w) open B/p clay; shaley seams			Run # 4 Drill 10.1 Rec 10.35 Left 0.0 Lost 0.0	
	48	LS	L.A. open (w) B/p Ten-buff; ATGyn, (w); loss; Hgt; shaley seams; thin-thick bed.		47.2		
	49		open B/p sl (w) open sl (w) B/p Intersect gravel filled gravel hole, tight & banded materials	100%	Box 3		
	50		L.A. open B/p L.A. closed tight gt, ss and sandstone int open B/p, gravel zone			D-105	

<b>DRILLING LOG</b>		<b>DIVISION</b>	<b>INSTALLATION</b>	<b>SHEET 5</b> OF 7 SHEETS
1. PROJECT <i>Patoka Lake</i>		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (FSM or MSL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <i>C158+45</i>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE STARTED _____ COMPLETED _____		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION a	DEPTH 50.3 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			open B/p, (w); sl. log seam			
51			LA open (w) B/p on shale seam			
			SL water washed (w) open 51.5-52.0 B/p on shaly seam			
52						
53			(w) open B/p on sh. seam			
			open B/p (w), sh. seam			
			shale seam, soft			
			shaly seam, soft			
54			open B/p			
			open B/p, sl (w)			
			open B/p, sl (w)			
55			broken (w) w/ shaly zone			
			rock beveled, shale (w) shale foss			
			L.A. open B/p; (w)			
56			(w) broken open, sl. col B/p			
			L.A. open B/p			
57			(w) shale seam			
			shale zone sl (w)			
58			open B/p	100%		
			occ shaly seams 57.8-61.3			
59			L.A. open B/p			
			shaly zone			
			v. sh. grey, alk. p. zone			
			open B/p; sl. sta. near			

CD  
55.3  
EL 510.9  
DL 55.6

Run # 5  
Drill 10.0  
Rec 10.3 ✓  
Lost 0.0  
Lost 0.0

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PROJECT

Patoka Lake

D-206

HOLE NO.

C158



DRILLING LOG		DIVISION		INSTALLATION		SHEET OF 7 SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C158+45</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE    STARTED    COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
	61		shale seam, open B/p.		61.3		
	62		LA soft open B/p shale zone 62.2-64.55 non shale seams SL water washed on shale seams				
	63		shale zone				
			(w) shale zone				
			highly (w) zone; crumbly; buff; non soft shale seams				
	64		shale seam small sol zone on core edge; med filled w/ sand open B/p    Traces		Box 4		
	65		open B/p			DDHCD 65.6 EL 510.6	
	66		buff (w) 65.6-66.05 sl sol (w) B/p w/ mud traces Ls gray 66.05-66.85			Run # 6 Drill 10.0 Rec 8.45 Lest 0.7 Lost 0.85	
	67		open B/p 100 HA sol 9 ft. across core; partially missing; drapled w/ reddish brown clay sol B/p    partial core missing				
	68		HA-VERT sol 9 ft; open; stained; highly iron surfaces core break; sol B/p 1/2 across core, low L	90%			
	69		open B/p buff, (w) zone 100 sol surface 0.85 ft core loss med clay filled cavity med clay traces on (w) surface				
497.1							
496.15							

ENG FORM 1836  
MAR 71

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PROJECT

*Patoka Lake*

HOLE NO.

*C158+45*

Hole No. C158+45

DRILLING LOG		DIVISION		INSTALLATION		SHEET 7 OF 7 SHEETS	
1. PROJECT Patoka Lake				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) C158+45				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE STARTED COMPLETED			
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
19. SIGNATURE OF INSPECTOR							

ELEVATION a	DEPTH b 70 71 72 73 74 75 76 77	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			(u) + stained zone			
			LT grey un (u)			
			71			
			72			
493.75			73			
			SH			
			soft broken zone, core partially missing dk grey, foss, mod soft; thin bedded, calc.			
			V. Clay zone; mostly LS w/ some shale; foss, interbedded LS/SH			
			74			
491.3			75			
			soft zone, core broken; partial core missing. Left 0.7 ft in hole		74.9 491.3	CD 74.9 SL 491.3
			bottom 75.6			DD 75.6
			76			
			77			

D-108

DRILLING LOG		DIVISION	INSTALLATION		SHEET OF 8 SHEETS	
1. PROJECT Pata Lake			10. SIZE AND TYPE OF BIT 1 1/2" Wire Line			
2. LOCATION (Coordinates or Station) 100° 15' 15" W 10° 15' 15" N			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL			
3. DRILLING AGENCY Central Pollution Co			12. MANUFACTURER'S DESIGNATION OF DRILL Mobile B-51			
4. HOLE NO. (As shown on drawing title and file number) C159435			13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED UNDISTURBED			
5. NAME OF DRILLER S. S. Smith			14. TOTAL NUMBER CORE BOXES 5			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN 2.4			16. DATE HOLE STARTED 7/15/75 COMPLETED 9/22/75			
8. DEPTH DRILLED INTO ROCK 62'			17. ELEVATION TOP OF HOLE 563.7			
9. TOTAL DEPTH OF HOLE 75.2			18. TOTAL CORE RECOVERY FOR BORING 27.1			
19. SIGNATURE OF INSPECTOR Hawlett						
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		OB	Back 6.77 this portion of hole			Hole water tested & sweated before H.C. could be obtained

D-209

DRILLING LOG		DIVISION <b>OHIO LNER</b>	INSTALLATION <b>LOU DIS.</b>	SHEET <b>2</b> OF <b>8</b> SHEETS
1. PROJECT			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL	
4. HOLE NO. (As shown on drawing title and file number) <b>C 159+35</b>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN <span style="float: right;">DISTURBED    UNDISTURBED</span>	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER	
7. THICKNESS OF OVERBURDEN			16. DATE HOLE <span style="float: right;">STARTED    COMPLETED</span>	
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE <b>563.9</b>	
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING <b>86%</b>	
19. SIGNATURE OF INSPECTOR				

ELEVATION <small>a</small>	DEPTH <small>b</small>	LEGEND <small>c</small>	CLASSIFICATION OF MATERIALS (Description) <small>d</small>	CORE RECOVERY <small>e</small>	BOX OR SAMPLE NO. <small>f</small>	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) <small>g</small>
560.5			<p>TOR</p> <p>Ss, mod hd, lt. gray</p> <p>0.35' core loss</p> <p>red clay filling</p>			<p>Start Core 13.4</p> <p>Run #1</p> <p>Drill 2.9</p> <p>Rec 2.3 <u>2.15</u></p> <p>Left 0.4</p> <p>Lost 0.2 <u>0.35</u></p>
			<p>Gray, mod soft to soft, fissile, frag thin Ss partings, badly washed by drilling</p>			
			<p>0.3' core loss</p>			<p>CO 15.9</p>
			<p>merged</p> <p>3 vert frags, intersecting @ 90° ⊕ x-section</p> <p>very thin coal bands</p>			<p>DD 16.3</p> <p>Run #2</p> <p>Drill 9.3</p> <p>Rec 9.2 ✓</p> <p>Left 0.2</p> <p>Lost 0.3 ✓</p>
			<p>very staley</p> <p>rust stained</p>			
			<p>Ss</p> <p>h/a frac, stained</p>			

DRILLING LOG		DIVISION		INSTALLATION		HOLE NO. <span style="float: right;">SHEET 3 OF 8 SHEETS</span>	
1. PROJECT <b>Patoka Lake</b>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>C159435</b>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		UNDISTURBED	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE <b>563.9</b>		STARTED	
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING		COMPLETED	
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR			

ELEVATION a	DEPTH 20 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			very shaley			
			rust stained cat r/a frac, mended, rust stained			
		SS	Lt. gray, mod. hd, thin bd, very fine grained, irregular sh lamina abundant, (w) to rust brown color, weak along sh lamina, sh is sl micaceous			
			rust stained, spheroidal weathering			
			sl. stained			
			very shaley (50%) <span style="float: right;">Box 1</span>			
			0.5' CORE LOSS FROM 538.5 TO 538.0			DO 25.6
		IC	Greenish gray, mod soft to soft, badly washed & crumpled by drilling.			Run #3 Drill 9.0 Rec 2.45 Left 0.25 Lost 0.60
			Tan chert nodule, hd.	94%		
		SS Sh	Gray to greenish gray, mod hd to mod soft, very thin bd, finely (v), very fine grained SS interbed w/ green shale.			
			maroon stained			
		Sh	Gray, mod soft to soft, fine, sandy, badly washed & scoured by drill water action, highly (w) maroon stained in upper 2.25'			

DRILLING LOG		DIVISION	INSTALLATION	Rite No.
1. PROJECT <b>Patoka Lake</b>		10. SIZE AND TYPE OF BIT		SHEET <b>7</b> OF <b>8</b> SHEETS
2. LOCATION (Coordinates or Station)		11. DAY/UNIT FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <b>C159435</b>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE STARTED COMPLETED		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE <b>563.9</b>		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING %		
		19. SIGNATURE OF INSPECTOR		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			badly broken			
	31		Badly broken, zone of 0.1' CORE LOSS, DIST FROM EL 533.1 TO EL 532.45			
	32					
	33		very shaley h/a frac, open			
	34		vert frac, open very shaley vert frac shaley			
	35		broken sandstone, Lt gray to gray, med hd to mud soft, thin bd, irreg	100%		DO 35.5
	36	SS & Sh	bd, very fine gr. Soft green shale along shale partings, numerous open b/p's, sl cal			Run #4 DO 36.5 Left 0.2 Net 0.15 lost 0.0
	37		very shaley zones vert. frac shaley vert frac, open shaley	97%		Run #5 Drill 10.5 Rec 12.4 10.2 Left 0.0 Lost 0.3
	38		broken			
	39		Badly broken, zone of 0.3' CORE LOSS, DIST FROM EL 524.75 TO EL 522.9			

D-112

DRILLING LOG		DIVISION	INSTALLATION	Hole No. <b>C 159+35</b>	SHEET <b>5</b> OF <b>8</b> SHEETS	
1. PROJECT <b>Patoka Lake</b>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>C 159+35</b>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN			
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE			
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE <b>563.9</b>			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH 45.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
41			sol top of Ls sty			
42						
43						
44						
45			Tannish gray to buff, hd, thick bed to massive, xlyn, sl. sandy, occ shale inclusions, occ. sty, more shale in lower 2.0', sl yellow stained; sl fgs		B0A3	
46						
47			Freq. green sh inclusions green sh parting along b/p			Run #5 Drill 10.0 ✓ Rec 10.0 ✓ Left 0.0 Lost 0.0
48						
49			sty, sol More shale partings & inclusions, (w) to tan. sol b/p sty, tight	100%		





DRILLING LOG		DIVISION	INSTALLATION	Hole No. C159430	
			SHEET 7 OF 8 SHEETS		
1. PROJECT <b>Patoka Lake</b>			10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or HSL)		
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <b>C159430</b>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN			16. DATE HOLE STARTED _____ COMPLETED _____		
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE <b>563.9</b>		
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING <b>2</b>		
			19. SIGNATURE OF INSPECTOR		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
61			sty (w), yellow stained between sty. <i>(Broken removing from barrel Ls gray, hd, dense, highly frac, (chert))</i>			
62			sty highly (w) yellow stained h/a frac, cal mended			
63			vert frac, cal mended			
64			hardline vert frac			
65			shaley, yellow stained			
66			sty sty, sol shaley, yellow stained Gray, hd, med to thick bd, occ shaley zones, sl. yellow stained to cl, sty shaley band, yellow stained			
67			b/p, filled			
68			Gray Shaley lam more abundant below 65.7' (el: 498.2), Ls is darker gray. yellow stained very shaley, highly sol. 0.1' CORE LOSS			DD 66.3 CD 66.35 Run # 8 Drill 10.0 RCC 9.2' Loss 0.5 Net 0.25
69			sty			
70			Gray shale seam, soft			
71			sty			

<b>DRILLING LOG</b>		DIVISION	INSTALLATION	FIG. NO.	SHEET <b>8</b> OF <b>8</b> SHEETS
1. PROJECT <b>PaToka Lake</b>			10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)			11. DAYUM FOR ELEVATION SHOWN (YBM or MSL)		
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <b>C154+35</b>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE <b>503.9</b>		
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING		
			19. SIGNATURE OF INSPECTOR		

ELEVATION a	DEPTH 70.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			finely xlyn, shaley			
	71		Sh, gray, fissile, mod. soft			
	72		broken, core spins			
			0.15' CORE LOSS Ls intbd w/Sh			
	73					
	74					
	75		Sh DK. gray, mod soft to soft, fissile, numerous open b/p's scoured by drill water action			
	76		Left 0.5 ft in hole			
			bottom of hole			
	77					

DRILLING LOG		DIVISION	INSTALLATION	Note No. 1007-1	SHEET OF 9 SHEETS
1. PROJECT WSP. Lake			10. SIZE AND TYPE OF BIT NO. 1007-1		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL
2. LOCATION (Coordinates or Station) 1007-1			12. MANUFACTURER'S DESIGNATION OF DRILL Model 2-31		
3. DRILLING AGENCY Continental Drilling Co.			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED
4. HOLE NO. (As shown on drawing title and file number) C160400			14. TOTAL NUMBER CORE BOXES 7		15. ELEVATION GROUND WATER
5. NAME OF DRILLER J. Johnson			16. DATE HOLE STARTED 9/28/76 COMPLETED 9/28/76		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			17. ELEVATION TOP OF HOLE 7.0		
7. THICKNESS OF OVERBURDEN 2.5			18. TOTAL CORE RECOVERY FOR BORING 98.8		
8. DEPTH DRILLED INTO ROCK 63.55			19. SIGNATURE OF INSPECTOR A. Hamilton		
9. TOTAL DEPTH OF HOLE					

ELEVATION •	DEPTH 0.0 •	LEGEND •	CLASSIFICATION OF MATERIALS (Description) •	% CORE RECOVERY •	BOX OR SAMPLE NO. •	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) •
		OB	clay & sandy clay			20.4 AT 16.05 ft Set casing & started casing. casing pulled loose. Drilled to 20.9 preset casing at that depth  W.L. 9/22/76 26.9  water test: set packer 26.5 ft, 15-5 0.0 " 1 minute 0.0 " 2 " " 0.0 " 3 " " 0.0 " 4 " " 0.0 " 5 " "

Hole No. C160760

DRILLING LOG		DIVISION		INSTALLATION		SHEET 2 OF 9 SHEETS	
1. PROJECT Patoke Lake				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) C160760				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE STARTED COMPLETED			
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
	11			0.0			
	12						
	13						
	14						
	15						
	16						
550.55						550.55 - 550.55	
	17					Casing was drilled to 20.96 of casing	
	18			0.0			
	19						
	20						

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PROJECT  
Patoke Lake D-110 HOLE NO.  
C160760

DRILLING LOG		DIVISION	INSTALLATION	SHEET 3 OF 9 SHEETS
1. PROJECT <i>Pa.Tra Late</i>		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)		11. DAYUM FOR ELEVATION SHOWN (TBM or BBL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <i>C 160+60</i>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input checked="" type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION a	DEPTH 20.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
546.1	21	SS	Start Corin. 20.9 very fine gr. ss & silt LT grey w/ num DK gray sh lam, Lam-thin cl, v fine graining, mud Hcl; thin bedded fine in ss lam			Run #1 Drill 4.95 Rec 4.9 ✓ Lost 0.05 Lost 0.0
	22		pyrite nodule			
	23		DCC small pyrite nodules in ss bds.	100%		
	24					
	25		small pyrite nodule bedded zone in ss bds.			
541.6	26	SS	fine gr. w/ num v. short sh laminae, discontinuous LT grey; thin-med bed v fine graining; few short discontinuous sh partings; mud;			EL 541.2 223.45 75.9
	27			95%		Run #2 Drill 10.05 Rec 9.2 Lost 0.0 Lost 0.5
532.25	28	IC	intermediate, pyrite nodules 0.3 ft. fine lss. f. ss 38.15- much more sandy, ore nodules in ss, and broken core to clay mudstone, medium to coarse gr. ss, thin bedded, mud soft, clayey			rather cloudy BGL collected too fast and conditions; consequently disturbed and trying to get it out of BGL
	29	SH				



DRILLING LOG		DIVISION	INSTALLATION		SHEET 5 OF 9 SHEETS	
1. PROJECT <i>Patocha Lake</i>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C160+60</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE		STARTED	COMPLETED
7. THICKNESS OF OVERBURDEN			17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK			18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE			19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH 40.3 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		SH	Soft - mud clay, thin bedded, dk green, fissile in part, mica-poor.			
	41		generally broken			
			core reddish, soft, fissile			
	42		(w); stained, yellowish brown			
524.4			Soft (w) clay seam			
	43		2, closed, rounded vert fractures; v. thin			
			shaly, within 5 ft. to 7 ft.			
	44		open 3/4 on shaly strata (w)			
			sliver open 3/4			
	45		horizontal wavy surface on core edge			core when removed from hole
		LS	LT green, shaly, clay interbedded with sand, silt, clay, and sh. (w) - shaly specimens, Hilly, massive - touch bed.			
	46		broken to bit core used			CO 45.9 46.1 46.2
	47			98%		Run #4 D.L. 9.9 D.C. 9.9 ✓ L.C. 0.0 S.C. 0.2
	48					
	49					





DRILLING LOG		DIVISION		INSTALLATION		SHEET 7 OF 9 SHEETS	
1. PROJECT <b>PaToke Lake</b>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>C160+60</b>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
19. SIGNATURE OF INSPECTOR							
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			open slip on 5" seam				
		LS	open slip on 14" seam				
			open slip on (w) - 60.6				
51			slice open slip on (w) sh seam		Box		
			slice open slip		3		
			open slip on (w) sh seam				
62							
			(w) shale seam, stained				
63							
64			open stained slip on slip				
			slip, 17c, 17d				
65					65.1		
			slip - (w) - 60.6		5.7		
66			un(w) below 65.6 depth - not				DD + CD 66.0 3.501.0
			(w) 67.5 - 68.2		301		Run # 6
			LA slip on 8" p	100%	4		Drill 10.0
68			LA slip on 8" p, stained				Rec 10.0 ✓
			LA slip on 8" p				Left 0.0
			LA slip on 8" p				Lost 0.0
69			LA slip on 8" p				
70			LA slip on 8" p				

<b>DRILLING LOG</b>		<b>DIVISION</b>		<b>INSTALLATION</b>		<b>SHEET 8 OF 9 SHEETS</b>	
1. PROJECT <b>PaToke Lake</b>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>C 160+60</b>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED <input type="checkbox"/> UNDISTURBED <input type="checkbox"/>	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED <input type="checkbox"/> COMPLETED <input type="checkbox"/>	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING <b>1</b>			
				19. SIGNATURE OF INSPECTOR			

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	70	LS				
	71		sh. red open 3/10 sh. ls. 27, 28, 29			
	72		open 3/10 v. H. red, med. bedded ls., tight v. H. sh. ls. 27, 28, 29 very green clay 7/15			
	73		sh. red open 3/10 open 3/10 open 3/10			
493.75		SH	sh. red, med. bedded, med. soft-mud H. ls. 27, 28, 29			
492.2		LS	sh. red, med. bedded, v. sh. ls., tight, med. bedded, H. ls. 27, 28, 29			
492.2	75	SH	Transitional contact partial core missing, soft			
	76		sh. red, med. bedded, sh. ls. 27, 28, 29			DO NOT 76.0 EL 492.2
	77		Water in hole 77.0 - 78.2			Run # 7 Drill 4.25 Rec 4.0 Left 0.25 Lost 0.0
	78		soft, green	100%		Good 78.0
	79					
492.2	80					EL 492.2 COR 0.0

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PROJECT **PaToke Lake D-124** HOLE NO. **C 160+60**





DRILLING LOG		DIVISION		INSTALLATION		SHEET <sup>1</sup> OF 7 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE 565.2		STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR	
9. TOTAL DEPTH OF HOLE							
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
20.0			small pyrite nodules on face of log				
21			small pyrite nodules on face of log				
22			Less than 5' - 6m below 22.5 ft				
23							
24		1	2 off set closed, stained & green				
25		1	closed, stained, 7 ft re. 9 ft.		BOX 1	DOT CO 24.7 EL 541.1	
25		1C	greenish grey, silty, micaceous, not bedded	74%		Run #2 Drill 1.4 Rec 0.85 Left 0.25 Lost 0.3	
26			0.2' Lost core			CO 25.85 EL 542.15 DOT 26.1	
27			Maroon stain			Run #3 Drill 10.1 Rec 10.05 Left 0.0 Lost 0.3'	
28		SH	Practically gray, some green, micaceous, not to soft, fissile, highly (w), badly scoured by drill water	97%			
29			badly broken, zone of 0.1' lost core				
30.0							

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PROJECT HOLE NO.  
Pet. A. Lake D-127 C161475

DRILLING LOG		DIVISION		INSTALLATION		SHEET 5 OF 7 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DAYUM FOR ELEVATION SHOWN (BM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE    STARTED    COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE    565.2			
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR			

ELEVATION a	DEPTH 20.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
31.0						
32.0						
33.0						
34.0		SS	Lt gray, med hd, fin med, irregular s'cle, lam throughout, numerous open Lps's			
35.0						
36.0						
37.0						
38.0						
39.0						
40.0						

SS Lt gray, med hd, fin med,  
irregular s'cle, lam throughout,  
numerous open Lps's

Broken

SH Gray, med soft to soft,  
fine, badly scoured by  
drill water

Box 2

10076

DULCO 36.2    66529.0

Run #4  
Drill 10.0 -  
RCL 125 (G.K.)  
Lost 0.0 -  
Lost 0.0 -

DRILLING LOG		DIVISION		INSTALLATION		SHEET 4 OF 7 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE    STARTED    COMPLETED			
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE    76.2			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING    %			
19. SIGNATURE OF INSPECTOR							

ELEVATION a	DEPTH ft., p b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			open 4 1/2			
			sty, tight			
91						
92						
			sty, tight			
93						
94						
95		LS	Buff, mod. hd., thick bd, a sh lam, sl sandy from 522.4, sl yellow stained, sty, xlyn			
96						
						DOT 46.2 EL 519.0
97			sty			
98			rose green shaley lam			
99			sty, open vert. sty sty, tight very shaley			
100						

<b>DRILLING LOG</b>		DIVISION		INSTALLATION		SHEET 5 OF 7 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (FSM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED    COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE 565.2			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING %			
				19. SIGNATURE OF INSPECTOR			

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			base (w) clay filled b/p, open yellow stained horizontal frac. irregular clay filled b/p			
51			Ls, coarsely xlyn, hd, thick bd, tan			
52			xlyn, lt tan			
53			0.03' tan clay seam on b/p			
			yellow-stained			
			shaley			
54						
			very shaley			
55						
56						
			Ls Lt. gray to gray, very fine grained, thin bd, mod hd, to mod soft, shaley, occ. very shaley zones, fcs., numerous open b/p's.			DDTD 56.4 EL 508.8
57						Run #6
						Drill 9.8
						Rec 285 8.8
						Left 0.0
						Lost 285 10'
58				90%		
59			very shaley			
60						



DRILLING LOG		DIVISION	INSTALLATION	FIGURE NO. 1001		SHEET 6 OF 7 SHEETS
1. PROJECT PITOLA LAKE		C-0 11172	LOO 017	10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number)		C161+75		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE 565.2		
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING %		
				19. SIGNATURE OF INSPECTOR		
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	60.0		highly (w) along b/p			
			yellow-stained			
	61		0.2' CORE LOSS			
			sol surface			
			hairline vert. jt.			
	62		single bed			
			sty			
			shaley, (w) along b/p			
	63		shaley, yellow stained			
			sol b/p			
			gray sh lam, break			
	64		shaley			
			0.8' CORE LOSS			
			highly (w) ZONE			
	65		sol surface			
			Ls Tan, thin to med bd, hd, xlyn, ccc. stole lam, sty.		BOX 4	
	66		sty			
			h/a frac, sol			
			comp p			
			grout seam			
	67		(w) ZONE			
			vert jt.			
			hairline vert jt			
	68		sol b/p			
			sty, sh lam	100%		
			496.55 to 499.7, single bed, very finely xlyn.			
	69		hairline vert frac, (cal. mended) extends throughout			
	70					

Approx 1.0 ft tool drop & partial DWL from 64.4 to 65.4 from driller.

DD'CA 66.2 EL 499.0

Run #7

Drill 10.0

Rec 8.0

Left 2.0

Lost 0.0

Approx 0.2 ft tool drop from 66.3' to 66.5' from driller

DRILLING LOG		DIVISION		INSTALLATION		SHEET OF 7 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED <input type="checkbox"/> UNDISTURBED <input type="checkbox"/>	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE <input type="checkbox"/> STARTED <input type="checkbox"/> COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE <u>565.2</u>			
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING %			
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
	71						
	72	SH	Ls, hd, finely xlyn, fos, shaley Dk. gray, mod soft to soft, fissile, numerous open b'ps, highly scoured by drill water, fos		Box 4		
491.0	74				24.2 491.0		CD 74.2 EL 491.0
	75		Left 2.0 ft in hole				
	76						DD 76.2
			bottom of hole				
	77						

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.  
(TRANSLUCENT)

PROJECT Potoka Lake D-132 HOLE NO. C161+75

DRILLING LOG		DIVISION		INSTALLATION		SHEET 1 OF 7 SHEETS	
1. PROJECT Patoka Lake				10. SIZE AND TYPE OF BIT CR. Diamond			
2. LOCATION (Coordinates or Station) S 20 101 + 28, 3 ft left				11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL			
3. DRILLING AGENCY Central Drilling Co.				12. MANUFACTURER'S DESIGNATION OF DRILL Mobile B-61			
4. HOLE NO. (As shown on drawing title and file number) C 162 + 29				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED —	
5. NAME OF DRILLER D. Johnson				14. TOTAL NUMBER CORE BOXES 5		UNDISTURBED —	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER —		16. DATE HOLE STARTED 9/28/76 COMPLETED 9/28/76	
7. THICKNESS OF OVERBURDEN 14.2				17. ELEVATION TOP OF HOLE 507.5			
8. DEPTH DRILLED INTO ROCK 62.1				18. TOTAL CORE RECOVERY FOR BORING 97.0			
9. TOTAL DEPTH OF HOLE 76.3				19. SIGNATURE OF INSPECTOR J. Hantel			
ELEVATION a	DEPTH 10.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
	11.0	OB				Rock bit to TOR and misfall 15.5 ft of casing.	
	12					W.L. - 11.7, 9/30/76	
	13					Water Test: Set packer 15.5 ft, 9/30/76; SPS 0 ca ft in 1 minute 0 " " " 2 " 0 " " " 3 " 0 " " " 4 " 0.0 " " " 5 "	
500.3	14		70R Start Coring 14.2 high (w)			Run #1	
	15		rust brown stain from EL 550.3 to 548.0; (w) vert frac, open	98%		DmLL 13.0 Rec 97 - 9.8 Left 0.2 Lost 0.0	
	16						
	17	SS	pyrite nodules 1" in dia Lt gray, med hd, thin bd, very fine grained, intb w/ gray sh, med hd, rust to med by (w), numerous open vls, a recess, vbl weak band between S & sh, occ pyrite inclusions, very irregular bedding			FOX	
	18						
	19		EL 547.4-542.7 increase in sh content				
	20.0						

DRILLING LOG		DIVISION		INSTALLATION		SHEET 2 OF 7 SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C 162+29</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED      UNDISTURBED			
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE STARTED      COMPLETED			
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE <i>56.45</i>			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING %			
19. SIGNATURE OF INSPECTOR							

ELEVATION a	DEPTH 20. b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVER- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			<i>h/a frac, open</i>			
21						
22			<i>EL 542.7 to 539.35 Ss predominant, w/ sh lamina, iron stained</i>			
			<i>vert frac, mended</i>			
23						
			<i>hairline vert frac, mended</i>			
24						<i>CO 24.2</i>
			<i>vert frac partially mended</i>	<i>88%</i>	<i>BOX 1</i>	<i>Run #2</i>
25			<i>0.15' core loss</i>			<i>Drill 2.1</i>
			<i>Greenish gray, med sort, w/ nodules, only recovered fragments, about 0.15'</i>			<i>Rec 1.15      CO 25.3</i>
26						<i>Left 1.0      EL 539.2</i>
						<i>Lost 2.05 0.15</i>
						<i>DD 26.3</i>
27			<i>1.65' core loss dist. from EL 539.20 to EL 533.95</i>	<i>84%</i>		<i>Run #3</i>
			<i>maroon stained</i>			<i>Drill 9.4</i>
28			<i>SH      some Gray, maroon stained, soft to med soft, fissile, badly scoured by drill water action.</i>			<i>Rec 8.70</i>
29						<i>Left 0.05</i>
			<i>broken</i>			<i>Lost 1.65</i>
30						

DRILLING LOG		DIVISION		INSTALLATION		SHEET 3 OF 7 SHEETS	
1. PROJECT <i>PaTota Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C162+29</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE STARTED _____ COMPLETED _____			
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE <i>5645</i>			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING _____ %			
19. SIGNATURE OF INSPECTOR							

ELEVATION a	DEPTH 30.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			<i>broken</i>			
	31					
	32					
	33					
	34	<i>SS</i>	<i>very fine gr. Lt. gray, med. to thir bd, irregular gray sh lamina throughout sl. cal, distorted beds</i>		<i>BOX 2</i>	
	35		<i>vlit, open, cal lined</i>			
	36		<i>broken, highly frac</i>			<i>DD 35.7</i>
	37		<i>broken</i>	<i>100%</i>		<i>Run # 4 Dmll 10.1 Rec 10.3 Lofr lost 0 0</i>
	38	<i>sh</i>	<i>to greenish gray Gray, med to med soft fine, finely scoured by drill water</i>			<i>COSSG FL 28.4</i>
	39		<i>broken</i>			
	40		<i>sol l/p h/a frac, chipped sol l/p</i>			

DRILLING LOG		DIVISION	INSTALLATION		SHEET 4 OF 7 SHEETS	
1. PROJECT <b>Patoka Lake</b>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DAYUM FOR ELEVATION SHOWN (TBM or ASL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>C162+29</b>			13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE		STARTED	COMPLETED
7. THICKNESS OF OVERBURDEN			17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
8. DEPTH DRILLED INTO ROCK			19. SIGNATURE OF INSPECTOR		%	
9. TOTAL DEPTH OF HOLE						
ELEVATION a	DEPTH 40 2 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	41		slt b/p's (w), yellow sta ncd, from el 524.6 to el 515.8 h/a frac, chpped vert frac, open		Box 2	
	42		h/a frags, chpped @ b/p			
	43					
	44					
	45	LS	Lt on, to tan gray, buff where (w), med hd, thin to thick bd, sl sandy, occ sh lar na, occ sp.			
	46		b/p, open vert frac, open			DU 45.8
	47		vert frac			Run # 5
	48		sty, col			Drill 10.5'
	49		h/a frac, col m. nded			ROC 10.15
			sty			Left
			sty col filled b/p			lost 0 0



DRILLING LOG		DIVISION	INSTALLATION	SHEET 6 OF 7 SHEETS
1. PROJECT <b>Patoka Lake</b>		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <b>C162+29</b>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED      UNDISTURBED		
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE      STARTED      COMPLETED		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE <b>569.5</b>		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION a	DEPTH b 60.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
61			Ls, xlyn, hd sol b/p			
62			clay filled b/p sty			
63			shaley, (w) along b/p Lt gray band, finely xlyn small vert frac (chert) sty			
64			very yellow stained by (w)			
65			base of (w), sty, clay filling open b/p			
66			LS Tan-Gray, thick bd, hd, xlyn occ fine sh lam, occ shaley zones, becomes more shaley with depth, occ sty.			DD 66.3      66.2?
67			shaley, more shale content from this point down			Run A7 UNCL 10.0 Rec 9.45 Left 0.65 Lost 0 0
68						
69			gray sh, fissile, soft			
70.0						



DRILLING LOG		DIVISION	INSTALLATION	SHEET 7 OF 7 SHEETS		
1. PROJECT <i>Patoka Lake</i>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C 162+29</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE		STARTED COMPLETED	
7. THICKNESS OF OVERBURDEN			17. ELEVATION TOP OF HOLE <i>564.5</i>			
8. DEPTH DRILLED INTO ROCK			18. TOTAL CORE RECOVERY FOR BORING		%	
9. TOTAL DEPTH OF HOLE			19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH 70.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	71		Gray sh, fissile, mod soft to soft			
	72		Ls intbd w/ irregular sh lam, gradational zone from Ls to Sh			
	73		scoured by drill water action.		Box 5	
	74	SH	Dk gray, mod soft, fissile, fos.			
	75					
488.85	76	X	Left 0.65 ft in hole bottom of hole	X		CD 75.65 EL 488.85 DO 76.3
	77					

<b>DRILLING LOG</b>		DIVISION	INSTALLATION	SHEET 1 OF 8 SHEETS
1. PROJECT		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)		11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number)		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	0.0	0.0				Set 11.8 ft casing
	1.0					
	2.0					
	3.0					
	4.0					
	5.0					
	6.0					
	7.0					
	8.0					
	9.0					
	10.0					
	11.0					
	12.0					
	13.0					
	14.0					
	15.0					
	16.0					
	17.0					
	18.0					
	19.0					
	20.0					
	21.0					
	22.0					
	23.0					
	24.0					
	25.0					
	26.0					
	27.0					
	28.0					
	29.0					
	30.0					
	31.0					
	32.0					
	33.0					
	34.0					
	35.0					
	36.0					
	37.0					
	38.0					
	39.0					
	40.0					
	41.0					
	42.0					
	43.0					
	44.0					
	45.0					
	46.0					
	47.0					
	48.0					
	49.0					
	50.0					
	51.0					
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	67.0					
	68.0					
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	72.0					
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	75.0					
	76.0					
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	80.0					
	81.0					
	82.0					
	83.0					
	84.0					
	85.0					
	86.0					
	87.0					
	88.0					
	89.0					
	90.0					
	91.0					
	92.0					
	93.0					
	94.0					
	95.0					
	96.0					
	97.0					
	98.0					
	99.0					
	100.0					

DRILLING LOG		DIVISION	INSTALLATION		Hole No. 11571
					SHEET 2 OF 8 SHEETS
1. PROJECT <b>Patoka Lake</b>			10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <b>C 162-1-7</b>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN			16. DATE HOLE <input type="checkbox"/> STARTED <input type="checkbox"/> COMPLETED		
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING		
			19. SIGNATURE OF INSPECTOR		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		013				
549.7			TOR Start Coring 11.5			
	11		partial core missing			
	12	SS	LT-10H grey, Lam-3 thru bd w/ nam sh lam, med soft sand Hbl, v. fine grain; sh (w) & stained.			Run #1
			broken			Drill 6.0
			core badly broken, possible loss			Rec 5.9
			LT grey, heavy nodules			Left 0.1
			LT grey, good seam, first contacts			Lost 0.0
	13		core broken & reduced			
			badly broken			
			badly broken			
	14			no%		
			badly broken, possible core loss			
	15					
			high dist. back water			
			mineral, broken & fine, mostly intact			
			broken w/ out badly fine			
			Silt stone bd			
544.25		SS	LT grey, - - - - - / first brn staining; (w); v. fine grain, ool sh partings; thin-mud bd.			EL 542.5
			Hbl, ool plant frags			CU 17.5
			open upon carb. seams			DD 17.6
	17					
			badly fine on core edge, partial core missing			Run #2
			fine on core edge			Drill 9.5
	18					Rec 8.8
						Left 0.05
	19			91.5		Lost 0.75
	20					

Hole No. C163457

DRILLING LOG		DIVISION		INSTALLATION		SHEET 3 OF 8 SHEETS	
1. PROJECT <b>Patoka Lake</b>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>C163457</b>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED <input type="checkbox"/> UNDISTURBED <input type="checkbox"/>	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE STARTED _____ COMPLETED _____	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH 20.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			<i>v. thin ice stained claystone</i>				
			<i>L.A. 13/2 broken</i>				
529.75	21	SS	<i>LT-DK grey; lam up num, sh lam, mod soft-mod Hd, v. fine grain broken</i>		Box 1		
530.45	22		<i>pyrite RTs on contact</i>				
	23	IC	<i>Greenish grey; no bdng; occ poorly developed slicks; soft; poorly cemented badly broken; sh calc.</i>				
	24		<i>0.75 ft core loss DIST 22.55-26.55, mostly in IC, EL 530.45-534.45</i>				
536.1	25	SH	<i>Reddish brown, mottled w/ greenish grey silt lam; thin bd; mod soft;</i>				
	26		<i>soft, somewhat fine, broken</i>		26.55		
	27		<i>0.2 ft core loss</i>			EL 533.95 CU 27.05	
	28		<i>badly broken, crumbly</i>			Run #3 Drill 9.5" RCC 8.65" Leif 0.3 -ST 0.6	
	29		<i>core broken; red red, partial core missing</i>		Box 2		
	29	SS	<i>Greenish grey - grey; v. fine grain; lam up num sh lam; mod Hd; occ xbdng; sh (w) non-cemented bedding</i>				

DIVISION		INSTALLATION		SHEET 5	
DIVISION		INSTALLATION		SHEET 4	
DRILLING LOG				OF 8 SHEETS	
1. PROJECT		10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE		15. ELEVATION GROUND WATER			
<input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.		16. DATE HOLE		STARTED    COMPLETED	
7. THICKNESS OF OVERBURDEN		17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK		18. TOTAL CORE RECOVERY FOR BORING		%	
9. TOTAL DEPTH OF HOLE		19. SIGNATURE OF INSPECTOR			

ELEVATION a	DEPTH 30.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			several broken lam			
31						
32			ss zone w/no sh lam	93%	Box 2	
33			partial core missing, lam			
			water washed bd.			
			vert frac, partial core missing			
34			core broken & reduced			
			0.1 ft 3 core loss			
35			SH dk grey, lam - thin bed w/occ ss lam; med soft; not broken			
			Zone of 0.3 ft core loss, badly broken, <del>unusable</del> reduced, re-matted; soft			
36						
			highly LA fine near edge			
			core spin			
			thin quartz seam on dip			
			(w) w/ staining, conch. surf, sh water washed			
37						
			broken & reduced			
			shaly contact, water washed			
			dark buff-grey (w);			
			massive, altern. to ss bed,			
38			(w) spherulite	100%		
			3 connect. near vert HA			
			close. highly conc, stained			
			HA bed			
39			100 broken across core, sh core spin			
			no LA highline closed line			

DRILLING LOG		DIVISION	INSTALLATION		SHEET 5 OF 8 SHEETS	
1. PROJECT <b>Patoka Lake</b>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>C163+57</b>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE		STARTED	COMPLETED
7. THICKNESS OF OVERBURDEN			17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
8. DEPTH DRILLED INTO ROCK			19. SIGNATURE OF INSPECTOR		%	
9. TOTAL DEPTH OF HOLE						
ELEVATION a	DEPTH 40.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
41			break to fit 8 core box		41.8	
42					Box 3	
43			SL core spin on (w) shaly seam; clay on surfaces LA break along shale parting - 1 SL core spin (w)			
44			iron open B/p (w) SL (w)			
45			LA open B/p; (w) & stained LA open B/p; SL (w) iron LA open SL (w) B/p			
46			HA, closed, base of (w) 45.4 Elev Tight face; stained core flange & SL iron B/p			DD & CD 46.1 EL 514.9
47			iron shaly shale below 45.5 streaky; SL (w); LT-mold grey SL SOL B/p break on shale parting B/p break on shale parting			Run #5 Drill 9.8 REC 9.8 ✓ Left 0.0 Lost 0.0
48			break to fit 8 box	100%		
49			open B/p water-washed sh parting, iron open B/p on shale parting core spin			
50.0						

DRILLING LOG		DIVISION		INSTALLATION		SHEET 6 OF 8 SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C163+57</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE STARTED COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH 50 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			SL core spin on B/P				
			open B/P				
51			SL or open B/P				
			open SL or B/P, shaley, LA				
52			highly iron free, horz				
			core spin on shaley B/P				
			open B/P on shale parting				
53							
			LA, SL or open B/P on shaley zone				
54			V. shaley 53.4 - 57.0				
			core spin on shaley B/P				
			open LA B/P on shale, parting				
55			SL core spin on B/P				
			SL or (w) open B/P, stained				
			core spin on shale, B/P				
			open B/P; dull cuttings				
56			open B/P, shaley			OUT C.D. 55.9 ELS-5.1	
			open B/P, shaley				
			broken zone, LA frags				
57			not shaley below 57.7				
				95.5	Box 4	Run # 6 D.L. 9.8 Rec. 8.8 ✓ Ltr 0.6 Lost 0.4	
58			(w) B/P; broken; partial core missing; possible core loss				
59			LA open (w) B/P on shale no stain, stained				

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PROJECT

*Patoka Lake D-145*

HOLE NO.

*C163+57*

DRILLING LOG		DIVISION		INSTALLATION		SHEET 7 OF 8 SHEETS	
1. PROJECT <b>Patoka Lake</b>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>C163+57</b>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE		16. DATE HOLE	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
8. DEPTH DRILLED INTO ROCK				19. SIGNATURE OF INSPECTOR		19. SIGNATURE OF INSPECTOR	
9. TOTAL DEPTH OF HOLE							
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			open B/P LA open BT core loss (w)				
499.1	61		Grout, mostly un-sanded; buff-grey; several horz. fiss tight upper contact; v. thin sanded sandy seam 0.01 @ top SS and druse fangs imbed in grout				
498.7	62		0.4 FT Core Loss; cavity clay, at. flood core spin on sub LS; no core loss protruding iron shot broken on shaley strat. 75		Box 4	Sand cuttings: 62.05-62.65; B/L DW @ 65.65; from driller.	
	63		shaley below 63.1				
	64	LS	Grey; hd, shaley, in part, foss; 176 ym				
	65		LS core spin on LS.				
	66	SH	0.8 FT core loss, probably due to drilling method gouged marks on core edges core under rock dk grey; foss; thin bd; mod soft,			CO 65.1 EL 495.9 DO 65.7	
	67	LS	mod. HA backl, fine cross core, open, 2ndy KTs on surface LA opposed backl, fine mod. dk grey, shaley; Hd, foss; 176 ym. Transition zone	88.7		Run #7 Drill 9.3 Rec 5.3 Left 4.0 Lost 0.6	
493.05	68		0.3 FT core loss				
492.75	69	SA	broken to colored core dk grey; thin bd; highly foss; calc; mod soft				
	70		open B/P v silty zone open B/P core spin open B/P		69.55		



<b>DRILLING LOG</b>		DIVISION	INSTALLATION	SHEET 8 OF 8 SHEETS
1. PROJECT <i>Petota Lake</i>		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <i>C163+57</i>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION a	DEPTH 70.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
EL 4990.0	71		open 3 lps		Box 5	
	72		Left 4.0 ft in hole		71.0	CO 71.0
	73					
	74					
	75		bottom hole			DD 75.0
	76					

<b>DRILLING LOG</b>		<b>DIVISION</b>	<b>INSTALLATION</b>	<b>SHEET</b> OF 8 SHEETS
1. PROJECT		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number)		13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		05	clay sand			<p>All material removed from hole is stored</p> <p>Drilled 2 ft. w/ yellow rock 6.77 ft. set 3 inch casing on 2/17/76</p> <p>Water tested after completion.</p> <p>Set packer @ 18 ft. 10 PSI.</p> <p>0.13 cu ft. in 1 minute 0.23 " 2 0.5 " 3 0.62 " 4 0.8 " 5</p> <p>Set packer @ 16 ft. 5 PSI</p> <p>0.1 cu ft. in 1 minute 0.22 " 2 0.33 " 3 0.43 " 4 0.53 " 5</p> <p>Set packer @ 13 ft. 5 PSI</p> <p>0.12 cu ft. in 1 minute 0.23 " 2 0.34 " 3 0.48 " 4 0.50 " 5</p>



DRILLING LOG		DIVISION		INSTALLATION		NO. 10 NO. 100 T C C	
1. PROJECT		2. LOCATION (Coordinates or Station)		3. DRILLING AGENCY		4. HOLE NO. (As shown on drawing title and file number)	
5. NAME OF DRILLER		6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF HOLE		10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (FSM or MSL)		12. MANUFACTURER'S DESIGNATION OF DRILL	
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		16. DATE HOLE	
17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR		SHEET 3 OF 4 SHEETS	
ELEVATION a	DEPTH 2' b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
21			normal brown 5/25 19.05.26.6				
22					Box 1		
23							
24							
25							
538.49							
26							
27							
28							
29							
30							
31							
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PROJECT

Project No. D-150

HOLE NO.

Hole No. 100



<b>DRILLING LOG</b>		<b>DIVISION</b>	<b>INSTALLATION</b>	<b>SHEET 5</b> <b>OF 6 SHEETS</b>
1. PROJECT <i>Patoka Lake</i>			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL	
4. HOLE NO. (As shown on drawing title and file number) <i>C 163+86</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER	
7. THICKNESS OF OVERBURDEN			16. DATE HOLE	
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE	
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING	
			19. SIGNATURE OF INSPECTOR	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			2-4' soft, fine sandstone - lime, shale, sandstone, soft			See BWR 1240.55
			stained, badly weathered			
	41		dark brown shale, parting			
			sol. B/P			
			H <sub>2</sub> , sol. gr. open; brown stained			
375	42	LS	lt. green - lt. brown, fossil interbedded; sh. sandstone of massive; pec. stratification		Box 3	
	43		See BWR 1240.55			
	44					
			light tan sol. along road; partial cross-section			
			see BWR 1240.55			
355			open, lt. stained B/P			See BWR 1240.55 EL 519.2
	45					See BWR 1240.55
	46					Drill 9.5 ROC 9.35 ✓ L <sub>5</sub> 2.4 L <sub>5</sub> T 0.1 ✓
	47			100%		See BWR 1240.55, Finish 1250
	48		open, lt. sol. B/P			
	49		stained open B/P, lt. sandstone shale, sandstone, shale, sandstone med. to dark gray, silty			
34			shale, sandstone, shale, sandstone base of weathering			

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PROJECT *Patoka Lake D-152* HOLE NO. *C 163+86*

DRILLING LOG		DIVISION		INSTALLATION		SHEET 6 OF 8 SHEETS	
1. PROJECT <i>Patoka Lake</i>				11. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DAYON FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C 163+86</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED    UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		16. STARTED    COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
51			break along hard shale seam		Box 3	
			break along shale seam			
			break along shale seam			
52			break along shale seam			
			break along shale seam			
53			break along shale seam			
			break along shale seam			
54			break along shale seam			
			break along shale seam			
55			break along shale seam			
			break along shale seam			
56			break along shale seam		Box 4	
			break along shale seam			
57			break along shale seam			
			break along shale seam			
58			break along shale seam			
			break along shale seam			
59			break along shale seam			
			break along shale seam			
60			break along shale seam			
			break along shale seam			
61			break along shale seam			
			break along shale seam			
62			break along shale seam			
			break along shale seam			
63			break along shale seam			
			break along shale seam			
64			break along shale seam			
			break along shale seam			
65			break along shale seam			
			break along shale seam			
66			break along shale seam			
			break along shale seam			
67			break along shale seam			
			break along shale seam			
68			break along shale seam			
			break along shale seam			
69			break along shale seam			
			break along shale seam			
70			break along shale seam			
			break along shale seam			
71			break along shale seam			
			break along shale seam			
72			break along shale seam			
			break along shale seam			
73			break along shale seam			
			break along shale seam			
74			break along shale seam			
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75			break along shale seam			
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76			break along shale seam			
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77			break along shale seam			
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78			break along shale seam			
			break along shale seam			
79			break along shale seam			
			break along shale seam			
80			break along shale seam			
			break along shale seam			
81			break along shale seam			
			break along shale seam			
82			break along shale seam			
			break along shale seam			
83			break along shale seam			
			break along shale seam			
84			break along shale seam			
			break along shale seam			
85			break along shale seam			
			break along shale seam			
86			break along shale seam			
			break along shale seam			
87			break along shale seam			
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89			break along shale seam			
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91			break along shale seam			
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92			break along shale seam			
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93			break along shale seam			
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94			break along shale seam			
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95			break along shale seam			
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96			break along shale seam			
			break along shale seam			
97			break along shale seam			
			break along shale seam			
98			break along shale seam			
			break along shale seam			
99			break along shale seam			
			break along shale seam			
100			break along shale seam			
			break along shale seam			

DRILLING LOG		DIVISION	INSTALLATION	SHEET 7 OF 8 SHEETS		
1. PROJECT <b>PATOKA LAKE</b>		10. SIZE AND TYPE OF BIT				
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)				
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL				
4. HOLE NO. (As shown on drawing title and file number) <b>C 163 + B6</b>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN				
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES				
6. DIRECTION OF HOLE □ VERTICAL □ INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER				
7. THICKNESS OF OVERBURDEN		16. DATE HOLE STARTED COMPLETED				
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE				
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING %				
		19. SIGNATURE OF INSPECTOR				
ELEVATION e	DEPTH f	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY g	BOX OR SAMPLE NO. h	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) i
			LA sandy silt			
	61		mid. soft weathered zone w/ approx 15% iron	0.004		
	62		iron stained zone break			
			core from 66.8-68.35 is highly (w) brown			
	63		2 LA silty clay (stained openings; lower one has sh core spin)			
			sh solutioned 3/p			
	64	X	0.65' core LOSS, cavity, probably clay filled			c = 64.1 - 64.5
		X	0.4 ft mic loss, cavity, clay filled			DD 64.5
			obs. lent			
			abundant frags; rock (ss) frags, some clay			
	65		2 small clay filled vugs 0.5 ft wide, on core edges			Run #7
						Drill 9.5
						Roc 2.5 ✓
						Lent 1.0
						Loss 0.4 ✓
	66		solutioned seam, possibly low loss; fossils out at bottom; highly weathered rock fragments, fossils, clay frags on surface			Start 2/12/76
			2 1/2' ash sil 3/p, massive clay frags; sh sil on surface			
	67		several vertical water washed iron sh & sand, stained iron black ash zone, iron sulfide nodules, ore washed	96.4		Nipple Rocked
			iron sand sil ST, highly stained; abundant large nodules; calcite sh clastic nodules			mud, 2nd @ 66.5,
			con bull, heavily stained; faint staining at 77'			2nd L Drill line 2' len
			SH 24 grey, thin 3d, silty, stains sh on surface, mud soft			sh @ 68.0 from drill
			thin gray seam in 12/p			
			care... ..			
			LS			



<b>DRILLING LOG</b>		DIVISION	INSTALLATION	SHEET 8 OF 8 SHEETS
1. PROJECT <i>Patoka Lake</i>			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM = MSL)	
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL	
4. HOLE NO. (As shown on drawing title and file number) <i>C163+86</i>			13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER	
7. THICKNESS OF OVERBURDEN			16. DATE HOLE	
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE	
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING	
			19. SIGNATURE OF INSPECTOR	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	70.0					
	71		break along shalar seam		Box 5	
		SH	highly fissile, crumbly, intact core free on eds & broken slieve spin Dk grey; highly fissile; thin bed; med. Hcl;			
	72		open slip			
+91.5	73		closed sh open root face to 23.1 ft, union at bottom  Let 10 ft in hole			C1 73.5 EL 491.5
	74					0074.0
	75					

DRILLING LOG		DIVISION	INSTALLATION		SHEET OF 8 SHEETS	
1. PROJECT			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DAYUM FOR ELEVATION SHOWN (YBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN			
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE			
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVER- ERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
564.38	0.0		Top of Ground			ALL measurements from Top of Casing.
	1.0	33				drilled 12.0 ft of 33 and set 33 33 is casing, sealed w/ cement on 7/15/76
	2.0					
	3.0					pulled casing during 1st casing pressure test and resealed casing w/ grout. did not grout this portion of the hole 7/15/76
	4.0					set casing @ 12 ft, 0.45 5.4 cu ft in 1 minute 10.4 2 11 16.2 3 12 21.6 4 13 27.0 5 14
	5.0					3 runs w/ 1649250, 1649250 1649250, 1649250, 1649250 17.5 8
	6.0					set casing @ 14 ft, 0.45 6.0 cu ft in 1 minute 14.4 2 15 20.7 3 16 26.5 4 17 32.3 5 18
	7.0					3 runs w/ 1649250, 1649250 1649250, 1649250, 1649250 casing set 1649250, 1649250 19.2 8
	8.0					set casing @ 16 ft, 0.45 6.0 cu ft in 1 minute 16.2 2 19 22.5 3 20 28.8 4 21 35.1 5 22
	9.0					upon completion of 1649250, 1649250, 1649250 set casing @ 18 ft, 0.45 6.0 cu ft in 1 minute 18.0 2 23 24.3 3 24 30.6 4 25 36.9 5 26

DRILLING LOG					OF 2 SHEETS	
1. PROJECT <i>Pet. Lake</i>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C164+25</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED <input type="checkbox"/> UNDISTURBED <input type="checkbox"/>	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		STARTED <input type="checkbox"/> COMPLETED <input type="checkbox"/>	
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		OS				W.L. 7.19 cfm 19.4 W.L. 7/21 : 11.7
552.7			Start casing 12.15 grout set casing			Run #1
		SH	bluish gray, sandy, silty lean - thin - soft mud sh - soft clay; when wet mud v. badly broken, possible core loss, infrequent sh. lam, set to sh. when stored			Drill 8.25 Rec 8.45 Leat 0.4 Loss 0.3
		SS	light gray - white granular, thin sand fine sand, silty, mod. to fine silty thin silty sand - clay Very fine sand; not silty, stained new on beam 15.15-15.25 broken possible core loss 14.7-14.6-14.5-15.5			Partial casing, during 1st run, reset and continued
		SH	tan, silty, sandy soft - mod soft, block gray - light gray ss. sand badly broken, possible core loss 15.25-16.25	100		
		SS	light gray, fine granular plant remains, thin down graded; thin silty, mod. hd - mod soft, coarse - areas x-bedded - some, also on beam, some staining on edges new break; along sandy, tan 28.25-29.45			

DRILLING LOG		DIVISION	INSTALLATION		SHEET 3 OF 8 SHEETS	
1. PROJECT <i>Patoka Lake</i>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C 164+25</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			<i>open 14/32, 1/2" plant remains</i>			<i>CD 20' EL 544.3</i>
			<i>closed vert. near line from across center of core</i>			<i>Run #2 Drill 7.25 Rec 6.45 Lost 0.05 Lost 1.05</i>
			<i>vert. face, center of core, core broken, some staining on edges</i>		<i>Box 1</i>	
				<i>86.5</i>		
<i>539.6</i>		<i>IC</i>	<i>Greenish grey, soft mud 10-15 mm. compaction slightly, slimes upon exposure water</i>			
			<i>10 ft. core loss due 25.15 - 28.0 EL 539.6 - 539.9</i>		<i>27.5</i>	
			<i>10 ft. core loss due 25.15 - 28.0 EL 539.6 - 539.9</i>			<i>EL 536.4</i>
		<i>SH</i>	<i>surface layer core broken &amp; red mud - thin white line, greenish grey</i>			<i>27.5</i>
			<i>one section of core lost due to core</i>			

DRILLING LOG		DIVISION		INSTALLATION		SHEET <u>4</u> OF <u>5</u> SHEETS	
1. PROJECT <u>Patoka Lake</u>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <u>C 164+25</u>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE		16. DATE HOLE	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE		17. ELEVATION TOP OF HOLE	
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING		18. TOTAL CORE RECOVERY FOR BORING	
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR		19. SIGNATURE OF INSPECTOR	
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			lt grey - fine sandy, with mod clay, shales with pressure, thin bed; acc ss lam, water washed			Run # 3	
			greenish grey soft, clayey zone			Drill 9.6	
			ss			Rec 9.2	
			mod sil, acc sh lam, v. fine ss. bed in areas; some ss. sh. clay, 0.15			Lost 0.15	
			bedded ss. zone			Lost 0.3	
			0.15 ft ss. zone loss				
			crack zone along sh lam				
			run ss lam 21.4 - 22.25				
			zone of truncated clay, ss lam in lam				
			3 clastic fine fines on edge				
			thin shaly seam				
				96.8	Box 2		
			broken soft, shaly zone				
			shaly zone, soft				
			broken zone w/ mod ss lam				
			clay, broken				
			lt grey, mod soft, acc mod shales & ss. lam, shales upon exposure, thin bed.			EL 27.4	
			mod clay marks on edge of ss			27.25	
			mod clay zone, mod L.A. breaks across core w/ slicks to 5 ft. on some slips			Drill 2.9	
			thin broken zone			Rec 3.1	
			thin sil. ss lam			Lost 0.2	
			crack zone				
			crack zone				
			mod clay shaly seam; ss. lam, ss. lam, ss. lam, ss. lam				
			LS				

DRILLING LOG		DIVISION		INSTALLATION		SHEET 5 OF 11 SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C 164+25</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.				16. DATE HOLE		STARTED    COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
8. DEPTH DRILLED INTO ROCK				19. SIGNATURE OF INSPECTOR			
9. TOTAL DEPTH OF HOLE							

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			SL stained area, brownish grey.			CD 400 - 55 EL 524.3
		LS	LS, grey, fine; med. bluish, grey, some staining; thin bedded, 1" to 1 1/2"			run 55 start 7.05 RCC 7.45 Lift 0.05 loss 0.0
92			SL, brown, staining along core edge, 44.0-45.9	41.95		
			open SL			
			open SL			
93			LS, brown, staining along core edge, 44.0-45.9			
			open SL			
94			LS, brown, staining along core edge, 44.0-45.9		Box 3	
			staining on open SL, 100			
95			several small traces on core edge, 2" to 3"			
			open SL			
96			LS, brown, staining along core edge, 44.0-45.9			
			open SL			
97			LS, brown, staining along core edge, 44.0-45.9			
			open SL			
98			LS, brown, staining along core edge, 44.0-45.9			EL 516.9
			open SL			
99			LS, brown, staining along core edge, 44.0-45.9			
			open SL			
100			LS, brown, staining along core edge, 44.0-45.9			
			open SL			
101			LS, brown, staining along core edge, 44.0-45.9			
			open SL			
102			LS, brown, staining along core edge, 44.0-45.9			
			open SL			
103			LS, brown, staining along core edge, 44.0-45.9			
			open SL			
104			LS, brown, staining along core edge, 44.0-45.9			
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105			LS, brown, staining along core edge, 44.0-45.9			
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106			LS, brown, staining along core edge, 44.0-45.9			
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107			LS, brown, staining along core edge, 44.0-45.9			
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108			LS, brown, staining along core edge, 44.0-45.9			
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109			LS, brown, staining along core edge, 44.0-45.9			
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111			LS, brown, staining along core edge, 44.0-45.9			
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183			LS, brown, staining along core edge, 44.0-45.9			
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187			LS, brown, staining along core edge, 44.0-45.9			
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189			LS, brown, staining along core edge, 44.0-45.9			
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190			LS, brown, staining along core edge, 44.0-45.9			
			open SL			
191			LS, brown, staining along core edge, 44.0-45.9			
			open SL			
192			LS, brown, staining along core edge, 44.0-45.9			
			open SL			
193			LS, brown, staining along core edge, 44.0-45.9			
			open SL			
194			LS, brown, staining along core edge, 44.0-45.9			
</						









Hole No. C-165-134

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 2 SHEETS		
1. PROJECT D-164		RD	Lowville	10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinate or Station) 165-134				11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3. DRILLING AGENCY Continental Drilling Co.				12. MANUFACTURER'S DESIGNATION OF DRILL C.P. 55		
4. HOLE NO. (As shown on drawing title and file number) C-165-134				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER D. J. [unclear]				14. TOTAL NUMBER CORE BOXES 5		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN 12.5				16. DATE HOLE STARTED 7/13/76 COMPLETED 7/13/76		
8. DEPTH DRILLED INTO ROCK 22.5				17. ELEVATION TOP OF HOLE 566.43		
9. TOTAL DEPTH OF HOLE 77				18. TOTAL CORE RECOVERY FOR BORING 12.7		
				19. SIGNATURE OF INSPECTOR J. Haultett		
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
566.43	0.0					All measurements from top of casing
565.43	1.0		Top Ground			
	2.0	OB				Set 13.0 ft of casing; Drilled first 2 ft of OB with 2 inch hollow rock bit.
	3.0					W.L. 7/13/76 before drilling: 12.4
	4.0					Water Test 7/13/76 after washing;
	5.0					① set anchor @ 14 ft; 5 PSI;
	6.0					1.6 cft in 1 min. 10
	7.0					2.2 " 2
	8.0					5.0 " 3
	9.0					7.4 " 4
	10.0					9.5 " 5
	11.0					Common 165+22.50;
	12.0					165+22.50 to 165+22.53
	13.0					② set anchor @ 18 ft; 5 PSI;
	14.0					1.4 cft in 1 min. 10
	15.0					2.8 " 2
	16.0					4.1 " 3
	17.0					5.6 " 4
	18.0					8.3 " 5
	19.0					Common 165+22.50;
	20.0					165+22.50 to 165+22.53
	21.0					③ set anchor @ 21 ft; 5 PSI;
	22.0					0.5 cft in 1 min. 10
	23.0					0.1 " 2
	24.0					0.2 " 3
	25.0					0.15 " 4
	26.0					0.3 " 5
	27.0					Common 165+22.50;



DRILLING LOG		DIVISION		INSTALLATION		SHEET 1 OF 1 SHEETS	
1. PROJECT <i>Pat. Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DAYUM FOR ELEVATION SHOWN (TBM or HSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C165414</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED <input type="checkbox"/> UNDISTURBED <input type="checkbox"/>	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		15. DATE HOLE <input type="checkbox"/> STARTED <input type="checkbox"/> COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING %			
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			<i>red sh. claystone zone on CR. base of section is thin calcareous sh. claystone, closed num breaks along sh. lam 10.3-11.35, slight discoloration base of weathering 20.75</i>			<i>DOPED 21.35 EL 545.18</i>	
			<i>num breaks along B/lis 1st break along B/lp</i>		<i>Box 1</i>	<i>Run # 2 Drill 9.8 Rec 9.8 Left 0.0 Lost 0.0</i>	
			<i>base of 27.25 23.1 Thin bedded sh. clay, ss lam</i>			<i>Core in this run was soft &amp; badly broken, probably no core loss.</i>	
			<i>vert open fract</i>	<i>100%</i>			
			<i>vert open fract</i>				
			<i>v. shaly 26.2-27.0 quartzite contact</i>				
<i>539.4</i>		<i>IE</i>	<i>greenish clay, shaly, reduced and badly weathered, past old core loss are small slivers, no bedding slaking when wet</i>		<i>37.4 539.0</i>		
<i>537.78</i>		<i>SH</i>	<i>medium grey, fine mod silt, to a bedded, highly bedded, shaly, clay, shaly, ss v. badly broken 28.65- 29.05, possible core loss</i>				

Hole No. C 165+34

DRILLING LOG		DIVISION		INSTALLATION		SHEET 4 OF 8 SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or BSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C 165+34</i>				13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
						EL 535.3
			redly broken, red, s. soft			DDACD 31.15
			3 L.A. approx 9T, 10% broken, rock partially missing soft - soft 22.05-22.55			7/12/76 Run # 3 Drill 9.8 Rec 9.45+ Left 0.35 Lost 0.0
			v sandy, 22.55-24.25 w/ num ss Ram		BoA 2	
			uppermost soft seam MA filled fracture, closed MA filled fracture			
532.2		SS	greenish grey, v. fine grained, low thin bed; num ss Ram; mid-end to mid soft; ore ss Ram; red zone	100%		
			red zone			
			closed MA vert fiss			
			quartzonal fracture, not filled			
527.5			3-4% thin oil soft mid soft, ore ss Ram, ss. calc			
			2.5-4T 19.5-40.1			

D-167

Hole NC165+34

DRILLING LOG		DIVISION	INSTALLATION		SHEET 5 OF 8 SHEETS	
1. PROJECT <u>Patoka Lake</u>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <u>C165+34</u>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN <input type="checkbox"/> DISTURBED <input type="checkbox"/> UNDISTURBED			
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE <input type="checkbox"/> STARTED <input type="checkbox"/> COMPLETED			
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION ft.	DEPTH ft.	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
			<p>core recovered from water level of 34.9-40.3</p> <p>occ. ss. lam. 40.1 to 40.6</p> <p>— sandy broken &amp; reduced from drilling action; zone of silty core loss</p>		2	<p>CD 426 EL 525.1</p> <p>Dr 40.95</p>
525.0			<p>— light, weathered &amp; stained silty sand</p> <p>— open stained, silty cal., 2/2</p> <p>— open stained, L.A. 2/2; 100% weathered</p> <p>— closed silty cal.</p>	41.85 54.6		<p>Run #4</p> <p>Drill 9.5</p> <p>Rec 9.6 ✓</p> <p>Left 0.15</p> <p>Lost 0.1</p>
			<p>— very closed, fine, 2 sets</p> <p>— silty sand, 40.5 to 40.7; 100% silty sand 42.6-42.7; 100%</p> <p>— silty sand 2/2; weathered</p> <p>— dk gray, unweathered sand with brownish green clay; 100% massive; 100%</p> <p>42.5 to 42.55</p>	8.1 3		
			<p>— fine, 2/2</p> <p>— base of staining &amp; weathering zone 42.2</p> <p>— silty sand, 42.2 to 42.3</p> <p>— silty sand, 42.3 to 42.4</p> <p>— silty sand, 42.4 to 42.5</p> <p>— silty sand, 42.5 to 42.6</p> <p>— silty sand, 42.6 to 42.7</p> <p>— silty sand, 42.7 to 42.8</p> <p>— silty sand, 42.8 to 42.9</p> <p>— silty sand, 42.9 to 43.0</p> <p>— silty sand, 43.0 to 43.1</p> <p>— silty sand, 43.1 to 43.2</p> <p>— silty sand, 43.2 to 43.3</p> <p>— silty sand, 43.3 to 43.4</p> <p>— silty sand, 43.4 to 43.5</p> <p>— silty sand, 43.5 to 43.6</p> <p>— silty sand, 43.6 to 43.7</p> <p>— silty sand, 43.7 to 43.8</p> <p>— silty sand, 43.8 to 43.9</p> <p>— silty sand, 43.9 to 44.0</p> <p>— silty sand, 44.0 to 44.1</p> <p>— silty sand, 44.1 to 44.2</p> <p>— silty sand, 44.2 to 44.3</p> <p>— silty sand, 44.3 to 44.4</p> <p>— silty sand, 44.4 to 44.5</p> <p>— silty sand, 44.5 to 44.6</p> <p>— silty sand, 44.6 to 44.7</p> <p>— silty sand, 44.7 to 44.8</p> <p>— silty sand, 44.8 to 44.9</p> <p>— silty sand, 44.9 to 45.0</p>	99.0		
			<p>— silty sand, 45.0 to 45.1</p> <p>— silty sand, 45.1 to 45.2</p> <p>— silty sand, 45.2 to 45.3</p> <p>— silty sand, 45.3 to 45.4</p> <p>— silty sand, 45.4 to 45.5</p> <p>— silty sand, 45.5 to 45.6</p> <p>— silty sand, 45.6 to 45.7</p> <p>— silty sand, 45.7 to 45.8</p> <p>— silty sand, 45.8 to 45.9</p> <p>— silty sand, 45.9 to 46.0</p> <p>— silty sand, 46.0 to 46.1</p> <p>— silty sand, 46.1 to 46.2</p> <p>— silty sand, 46.2 to 46.3</p> <p>— silty sand, 46.3 to 46.4</p> <p>— silty sand, 46.4 to 46.5</p> <p>— silty sand, 46.5 to 46.6</p> <p>— silty sand, 46.6 to 46.7</p> <p>— silty sand, 46.7 to 46.8</p> <p>— silty sand, 46.8 to 46.9</p> <p>— silty sand, 46.9 to 47.0</p> <p>— silty sand, 47.0 to 47.1</p> <p>— silty sand, 47.1 to 47.2</p> <p>— silty sand, 47.2 to 47.3</p> <p>— silty sand, 47.3 to 47.4</p> <p>— silty sand, 47.4 to 47.5</p> <p>— silty sand, 47.5 to 47.6</p> <p>— silty sand, 47.6 to 47.7</p> <p>— silty sand, 47.7 to 47.8</p> <p>— silty sand, 47.8 to 47.9</p> <p>— silty sand, 47.9 to 48.0</p> <p>— silty sand, 48.0 to 48.1</p> <p>— silty sand, 48.1 to 48.2</p> <p>— silty sand, 48.2 to 48.3</p> <p>— silty sand, 48.3 to 48.4</p> <p>— silty sand, 48.4 to 48.5</p> <p>— silty sand, 48.5 to 48.6</p> <p>— silty sand, 48.6 to 48.7</p> <p>— silty sand, 48.7 to 48.8</p> <p>— silty sand, 48.8 to 48.9</p> <p>— silty sand, 48.9 to 49.0</p> <p>— silty sand, 49.0 to 49.1</p> <p>— silty sand, 49.1 to 49.2</p> <p>— silty sand, 49.2 to 49.3</p> <p>— silty sand, 49.3 to 49.4</p> <p>— silty sand, 49.4 to 49.5</p> <p>— silty sand, 49.5 to 49.6</p> <p>— silty sand, 49.6 to 49.7</p> <p>— silty sand, 49.7 to 49.8</p> <p>— silty sand, 49.8 to 49.9</p> <p>— silty sand, 49.9 to 50.0</p>			

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PROJECT

Patoka Lake

HOLE NO.

C165+34

D-168



DRILLING LOG		DIVISION	INSTALLATION		SHEET 17 OF 2 SHEETS	
1. PROJECT <i>Patoka Lake</i>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C165+34</i>			13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		STARTED	COMPLETED
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			Run # 6 Drill 9.5 Rec 9.0 Lost 0.5 Lost 0.0			
61			SE. Trench of station on road edge 60.0-61.1			
			Frequent run in structure 60.0 - 65.1			
52			1/4 fine grain, var loss LS. zone near top of section		304	
53.6			horiz. fracture zone by		4	
53			1/4 fine grain, var loss LS. zone near top of section			
			100%			165+12.5 13 1/2
54.7			1/4 fine grain, var loss LS. zone near top of section			
55			1/4 fine grain, var loss LS. zone near top of section			
56			1/4 fine grain, var loss LS. zone near top of section			
57			1/4 fine grain, var loss LS. zone near top of section			
58			1/4 fine grain, var loss LS. zone near top of section			
59			1/4 fine grain, var loss LS. zone near top of section			
60			1/4 fine grain, var loss LS. zone near top of section			
61			1/4 fine grain, var loss LS. zone near top of section			
62			1/4 fine grain, var loss LS. zone near top of section			
63			1/4 fine grain, var loss LS. zone near top of section			
64			1/4 fine grain, var loss LS. zone near top of section			
65			1/4 fine grain, var loss LS. zone near top of section			
66			1/4 fine grain, var loss LS. zone near top of section			
67			1/4 fine grain, var loss LS. zone near top of section			
68			1/4 fine grain, var loss LS. zone near top of section			
69			1/4 fine grain, var loss LS. zone near top of section			
70			1/4 fine grain, var loss LS. zone near top of section			
71			1/4 fine grain, var loss LS. zone near top of section			
72			1/4 fine grain, var loss LS. zone near top of section			
73			1/4 fine grain, var loss LS. zone near top of section			
74			1/4 fine grain, var loss LS. zone near top of section			
75			1/4 fine grain, var loss LS. zone near top of section			
76			1/4 fine grain, var loss LS. zone near top of section			
77			1/4 fine grain, var loss LS. zone near top of section			
78			1/4 fine grain, var loss LS. zone near top of section			
79			1/4 fine grain, var loss LS. zone near top of section			
80			1/4 fine grain, var loss LS. zone near top of section			
81			1/4 fine grain, var loss LS. zone near top of section			
82			1/4 fine grain, var loss LS. zone near top of section			
83			1/4 fine grain, var loss LS. zone near top of section			
84			1/4 fine grain, var loss LS. zone near top of section			
85			1/4 fine grain, var loss LS. zone near top of section			
86			1/4 fine grain, var loss LS. zone near top of section			
87			1/4 fine grain, var loss LS. zone near top of section			
88			1/4 fine grain, var loss LS. zone near top of section			
89			1/4 fine grain, var loss LS. zone near top of section			
90			1/4 fine grain, var loss LS. zone near top of section			
91			1/4 fine grain, var loss LS. zone near top of section			
92			1/4 fine grain, var loss LS. zone near top of section			
93			1/4 fine grain, var loss LS. zone near top of section			
94			1/4 fine grain, var loss LS. zone near top of section			
95			1/4 fine grain, var loss LS. zone near top of section			
96			1/4 fine grain, var loss LS. zone near top of section			
97			1/4 fine grain, var loss LS. zone near top of section			
98			1/4 fine grain, var loss LS. zone near top of section			
99			1/4 fine grain, var loss LS. zone near top of section			
100			1/4 fine grain, var loss LS. zone near top of section			



DRILLING LOG		DIVISION		INSTALLATION		HOLE NO.		SHEET # OF # SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT					
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)					
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL					
4. HOLE NO. (As shown on drawing title and file number) <i>C165+34</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED		UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES					
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER					
7. THICKNESS OF OVERBURDEN				16. DATE HOLE STARTED _____ COMPLETED _____					
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE					
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING					
				19. SIGNATURE OF INSPECTOR					

ELEVATION a	DEPTH 70 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVER- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
493.3	70	LS	soft seam v. ls. thin			Run # 7
	71		open v. ls. thin			Drill 8.15
			med. v. ls. thin			Rec 7.8
			med. v. ls. thin			Left 2.65
				97.5		Left 0.2
494.5	72	LS	congl. med. contact		Box 5	
			stone med. v. ls. thin			
			med. v. ls. thin			
			med. v. ls. thin			
493.6	73	SP	congl. med. sh. by ls. thin			
			SP med. v. ls. thin bdy. med. v. ls. thin			
			med. v. ls. thin			
			med. v. ls. thin			
	74		med. v. ls. thin 72.2-77.0			
492.2			core spin 0.05 ft. core loss			
	75					
491.0			core spin; 0.1 ft. core loss			
	76					
	77		med. v. ls. thin	77.0		CD
			Left 0.65	49.4		EL
			bottom of hole			
	78					
	79					
	80					

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PROJECT

*Patoka Lake D-171*

HOLE NO.

*C165+34*

DRILLING LOG			DIVISION		INSTALLATION		SHEET	
			DRL 2D		CONTINENTAL		OF SHEETS	
1. PROJECT			PATOKA LAKE		10. SIZE AND TYPE OF BIT		5" DIAMOND	
2. LOCATION (Coordinates or Station)			2.5 Feet E OF STATION 166+15.5		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		MSL	
3. DRILLING AGENCY			CONTINENTAL DRILLING CO.		12. MANUFACTURER'S DESIGNATION OF DRILL		AIR Trac / CP-65 head attachment	
4. HOLE NO. (As shown on drawing title and file number)			C-166+15A		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	
5. NAME OF DRILLER					14. TOTAL NUMBER CORE BOXES		2	
6. DIRECTION OF HOLE			<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		N/A	
7. THICKNESS OF OVERBURDEN			12.4'		16. DATE HOLE		STARTED 31 MARCH 1976 COMPLETED 31 MARCH 1976	
8. DEPTH DRILLED INTO ROCK			2.4'		17. ELEVATION TOP OF HOLE		565.8	
9. TOTAL DEPTH OF HOLE			10.3 Feet		18. TOTAL CORE RECOVERY FOR BORING		77%	
					19. SIGNATURE OF INSPECTOR		L. J. Christman	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)		
565.8	0.0		SILTY SANDY CLAY 14.6'; 1/2 frags. gr. size 3.3 to 3.7			Loss 0.0' to 13.5' distributed through OUB.		
	3.7		SILTY CLAY FAT Red.	73%	Box #1			
	5.0							
	7.1		SILTY CLAY NOT Gr. - Br; Highly wd. sh. & b					
	10.2							
552.5	13.3		SILTY CLAY Bl. & mod. wd. shale, 5' to mod. h.	70%	14.8	Loss 10.8' to 14.8' after 12" to blocking occurring 13.6' to 14.8'		
550.7	15.1		SANDSTONE soft, medium to med. 1 to SH. str.	85%	Box #2	Encountered 0.05' of grout 15.15 to 15.20		
549.2	16.8				16.8	Loss 14.8' to 15.8' = 0.1' = 15.1 to 15.3 0.2' = Left in hole		
						OUB 14.4' Rock 2.4' Used double tube barrel from 0.0 to 16.8 to assure pick up at top of rock. Gradational contact could be set different places by different people.		

DRILLING LOG			INSTALLATION		SHEET	
1. PROJECT			10. SIZE AND TYPE OF BIT		OF 7 SHEETS	
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		STARTED 3/8/76 COMPLETED 4/12/76	
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING		93.9	
			19. SIGNATURE OF INSPECTOR		14 APR 76	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
565.7	0.0		OB - unclassified			Roller bit to 14.0 and grouted casing. See hole C-14615A for OB.
551.7	14.0		GRout - from setting casing.			
551.0	14.7		SANDSTONE, buff, fine grained, broken, sl(w) brown on open faces.			Drill 7.35 Rec 6.9 -0.45
	15.0		0.1' core loss distributed			
			0.03' grout @ 15.2			
			SS, buff, brkn, (w)			
	16.0		SHALE, gray, soft (mod soft 15.9-16.2)			
			(w) with gravel frags 15.2-15.4			
549.3	16.4		SANDSTONE fine grained, gray with brown iron staining except 16.4-16.8, hd, pieces 0.1' to 0.5', weath to brown on 16.5.	96%	Box #1	Start 1102 Finish 1200
	17.0		v/s (w) 17.7-17.9			
	18.0		hole L to core 1/2" diameter unweathered @ 18.8.			
546.85	19.0		SHALE, mod hd, dk gray w/ light gray fine grained sandstone stringers throughout. pieces avg. 0.2', sl(w), core spin 18.85-19.0			
	20.0		sl(w), brkn, 19.3-19.4			
	21.0					
	22.0					
542.7			0.2' loss core spin @ 22.6	84%		CD212 Run #1 21.35 Drill 2.55 Start 1320 Rec 2.10 Finish 1340 -0.25 possible blockier core.

DRILLING LOG		OF 7 SHEETS	
1. PROJECT <b>PATOKA LAKE</b>		10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) <b>STA 166+15 2.5' R+ E</b>		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL	
4. HOLE NO. (As shown on drawing title and file number) <b>C-166+15 B</b>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE	
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE	
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
		19. SIGNATURE OF INSPECTOR	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
542.7			0.2' core loss core spins @ 23.3 23.5			Loss probably due to soft sh blocking barrel. CD 23.9 EWS 2 23.9
	24.0		4' ground			
540.6	25.0		SHALE, appears as frags & cutting mixed w/ (w) fine sh shale 25.1-25.8, soft, gray			Drill 10.0 Rec 9.6 -0.4
	26.0		0.2' Core Loss shale, soft, gray, deformed while drilling possibly IC			Start 1355 Finish 1525
	27.0		SHALE, gray to green, some br (w) mod soft to soft.			Had some trouble getting shale out of barrel.
	28.0		br clayey seam w/ sh frags	98%		
	29.0		v/u (w) br w/ green clayey filling.			
	30.0					
535.4	30.3		INDURATED CLAY, very soft, gray to green			
534.7	31.0		LIMESTONE, white to gray, sandy w/ occ. shale stringers pieces 0.2' long no weathering on Hor. planes closed unweathered v/u 32.0 - 32.6		Box 2	
	32.0					
532.7						

DRILLING LOG				SHEET 5 OF 7 SHEETS	
1. PROJECT <b>PATOKA LAKE</b>				10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) <b>STA 166+15 2.5' R+R</b>				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL	
4. HOLE NO. (As shown on drawing title and file number) <b>C-166+15B</b>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER	
7. THICKNESS OF OVERBURDEN				16. DATE HOLE STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE	
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING	
				19. SIGNATURE OF INSPECTOR	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
532.7						
532.0	33.7					CD 33.7
	34.0		SHALE, OCC calc; mod soft to mod hard where limy, grey.			Rw #3 33.9
	35.0		Core ground, bkn, and soft 33.7-33.9			Drill 10.0
			34.5-34.8			Rec 7.8
			35.3-35.8			-0.2
			36.4-36.8			
			37.2-38.1			
	36.0		max. Core piece 0.2'			
	37.0			96%	Box 2	Start 0935
	38.0					Finish 1015
	38.5	X	0.4' Loss distributed throughout shale			Had trouble getting shale out of barrel.
527.2	39.0		LIMESTONE, n.s., lt grey, crystalline, foss, m(w).			
	39.5		stylolite 1/16"			
	40.0	Bp	very sl(w) on Bp's			
			excellent core			
			1 piece 38.5-39.4			
			1 piece 39.4-40.9			
	41.0					
	42.0					
522.7						

DRILLING LOG		DIVISION		INSTALLATION		SHEET OF 7 SHEETS	
1. PROJECT <b>PATOKA LAKE</b>				10. SIZE AND TYPE OF PIT			
2. LOCATION (Coordinates or Station) <b>STA 166+15 2.5' R+G</b>				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>C-166+15B</b>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE    STARTED    COMPLETED			
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
522.7	b	c	d	e	f	g	
44.0			LIMESTONE, hd, H. gr. c.			CD439 END RUN 439	
45.0			cr. st. line, foss		521.4	Drill 10.0 Rec 13.0 0.0	
46.0		Bp	sl. sh. 46				
47.0		Bp	sl. sh. 46				
48.0			tight w/ on edge of core				
49.0			sl. w) brown 46.2-46.3				
50.0			part w		Box 3	Start 1245 Finish 1355	
51.0			sl. sh. 46				
52.0			irreg un (w)	100%		good solid core	
53.0			frac during drilling (?)				
54.0							
55.0							
56.0							
57.0							
58.0							
59.0							
60.0							
61.0							
62.0							
63.0							
64.0							
65.0							
66.0							
67.0							
68.0							
69.0							
70.0							
71.0							
72.0							
73.0							
74.0							
75.0							
76.0							
77.0							
78.0							
79.0							
80.0							
81.0							
82.0							
83.0							
84.0							
85.0							
86.0							
87.0							
88.0							
89.0							
90.0							
91.0							
92.0							
93.0							
94.0							
95.0							
96.0							
97.0							
98.0							
99.0							
100.0							
512.7			58.8 irreg unconsolidated frac during				

DRILLING LOG				OF 7 SHEETS		
1. PROJECT <b>PATOKA LAKE</b>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station) <b>STA 166+15 2.5' R+R</b>			11. DATUM FOR ELEVATION SHOWN (FBN or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>C-166+15B</b>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		13. UNDISTURBED	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER		16. DATE HOLE	
7. THICKNESS OF OVERBURDEN			17. ELEVATION TOP OF HOLE		16. STARTED	
8. DEPTH DRILLED INTO ROCK			18. TOTAL CORE RECOVERY FOR BORING		16. COMPLETED	
9. TOTAL DEPTH OF HOLE			19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
512.7						
			LIMESTONE, hd, lt gray crystalline, foss, un(w)			CD 53.9 Run 5 53.9
540						
		Bp's				Drill 10.0
550						Rec'd 9.9
						-0.1
560			(w) lt. brown on faces sl. (w) some sand on face		Box 3	
570			shaly - slightly (w)			Start 1430
			bedded v/s open in a few places			Finish 1555
580			sl (w) - stylolite through Bp's	100%		
590			near v/s, tight, parallel		5066	Core in good shape - breaks only on Bp's
600						
610					Box 4	
620						
502.7						

DRILLING LOG		OF 7 SHEETS
1. PROJECT <b>PATOKA LAKE</b>		10. SIZE AND TYPE OF BIT
2. LOCATION (Coordinates or Station) <b>STA 166+15B 2.51 E</b>		11. DAY FOR ELEVATION SHOWN (YBM or MSL)
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL
4. HOLE NO. (As shown on drawing title and file number) <b>C-166+15B</b>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER
7. THICKNESS OF OVERBURDEN		16. DATE HOLE <input type="checkbox"/> STARTED <input type="checkbox"/> COMPLETED
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING %
		19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
502.7						
502.35	43.5		SANDED GROUT			
501.85	43.85		- solid piece			
	44.0		45° at bottom			
			1.0' core loss			
			assumed sandy material from cuttings			
500.85	45.0		LIMESTONE, hd, gr, x line, highly foss, 45° at upper end, (w)			
500.55			GROUT - neat cement			
500.35			1.0' core loss			
			w/ a few frags (1/2 chips) of shaly ls and grout.			
499.35			LIMESTONE, hd, gr, x line, foss.			
	67.0		(w) brown, 1/4" on upper side and open faces, hd, no softening			
			irr. (w) dk on face			
	68.0		very sl black (w) on faces.			
	69.0					
495.9			some pyrite on bottom face			
	70.0		0.1 LOSS			
			SHALE, mod soft, dk, spun & beveled at upper end, breaks easily on horizontal planes.			
	71.0					
494.2			LIMESTONE, hd, x line, foss, shaly			
	72.0					
492.7						

ENG FORM 1836 1 APR 63	PREVIOUS EDITIONS MAY BE USED	PROJECT <b>PATOKA LAKE</b>	SPO 930-151	HOLE NO. <b>C-166+15B</b>
		<b>D-178</b>		



1. PROJECT <b>PATOKA LAKE</b>				OF 7 SHEETS		
2. LOCATION (Coordinates or Station) <b>STA 166+15 2.5' RT. E</b>				10. SIZE AND TYPE OF BIT		
3. DRILLING AGENCY				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
4. HOLE NO. (As shown on drawing title and file number) <b>C-166+15B</b>				12. MANUFACTURER'S DESIGNATION OF DRILL		
5. NAME OF DRILLER				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				14. TOTAL NUMBER CORE BOXES		
7. THICKNESS OF OVERBURDEN				15. ELEVATION GROUND WATER		
8. DEPTH DRILLED INTO ROCK				16. DATE HOLE		
9. TOTAL DEPTH OF HOLE				17. ELEVATION TOP OF HOLE		
18. TOTAL CORE RECOVERY FOR BORING				19. SIGNATURE OF INSPECTOR		
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
492.7						
492.3			0.4' Lo SS assumed sandy mat. from cuttings			↓ Sandy drill cuttings very fine, dk.
			SHALE, gr. mod soft, to SS w/ 73.6-73.8 unkw, possibly fracture in pulling core			CD 73.0*
			0.1' LOSS spun, beveled edges.			
			SS frags, clay cells, w/ sh & fossil frags - very loose, w/ brown through midroom to black mat sand 8 1/2 to 1/2" chips			* Hole caving, possibly from (w) sand materials. Sand washed out at beginning of run.
491.0			0.1' LOSS - distributed 74.0-74.6			Drill 5.9 Rec 5.7 -0.2
			SHALE, mod soft to mod hd. gray, hor. bks mainly on hor. foss. planes.			** possibly picked up caved fragment from above.
			good core			
				97%	Box 5	CD 74.4 Hole caved, probably some material as 74.0-74.6 falling down to bottom of hole.
						Start 1130 (water hose broke) Restart 1245 Finish 1325
486.0	79.7		<b>BOTTOM HOLE</b>			RUN B 79.7
			TD 79.7			
			14.0 OB 65.7 ROCK			
			35.5 (c. 530.2) 3143314 A272			
			52.2 (c. 513.5) 2830.15 A272			

<b>DRILLING LOG</b>		DIVISION	INSTALLATION	SHEET
1. PROJECT			10. SIZE AND TYPE OF BIT	OF 8 SHEETS
2. LOCATION (Coordinates or Station)			11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL	
4. HOLE NO. (As shown on drawing title and file number)			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES	UNDISTURBED
6. DIRECTION OF HOLE			15. ELEVATION GROUND WATER	
<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE	STARTED
7. THICKNESS OF OVERBURDEN			17. ELEVATION TOP OF HOLE	COMPLETED
8. DEPTH DRILLED INTO ROCK			18. TOTAL CORE RECOVERY FOR BORING	
9. TOTAL DEPTH OF HOLE			19. SIGNATURE OF INSPECTOR	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
			Top of Ground	566.8		
	0.0	DB	Lt brown, clay			Rock bit & set Casing, 4/12/76 to 150 ft
	1.0					W.L. after casing: 18.6
	2.0					Water Tests: 5/1/76
	3.0					#1: 22.0-25.4
	4.0					0.15 cu ft/min = 0.04 CFM
	5.0					#2: 18.0-25.4
	6.0					0.4 cu ft/min = 0.08 CFM
	7.0					#3: 0-25.4
	8.0					0.06 cu ft/min = 0.01 CFM
	9.0					
	10.0					
	11.0					
	12.0					
	13.0					
	14.0					
	15.0					
	16.0					
	17.0					
	18.0					
	19.0					
	20.0					
	21.0					
	22.0					
	23.0					
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	27.0					
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	42.0					
	43.0					
	44.0					
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	95.0					
	96.0					
	97.0					
	98.0					
	99.0					
	100.0					

<b>DRILLING LOG</b>		DIVISION	INSTALLATION	SHEET 2 OF 8 SHEETS
1. PROJECT <i>Patoka Lake</i>		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number)		13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION a	DEPTH 10 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	1.0					
555.65	12.0		START Casing			
	13.0		Event from sealing Casing			
	14.0		Discard 3.25 ft of GWT			Run #1 Drill 9.7 Rec 7.05 Left 0.75 Lost 1.8
552.4	15.0	GWT				discarded gwt samples
551.9	16.0	OB	Tn clay w/ small rock frags			
	17.0	SS	TOP Tan - Buff; highly (w); partial core missing; Lam w/ num sh Pan; mod soft; stained, v. fine uniform grained	73.7	Box 1	
	18.0		1.8 ft core loss Dist 15.8 - 19.05			
548.3	19.0	LS	LT - dk grey; sh stained on edges; mod soft - mod Hd; Lam W. num sh Pan - 26 (w)			

Hole No. C167+57.5

DRILLING LOG		DIVISION	INSTALLATION		SHEET 3 OF 6 SHEETS	
1. PROJECT <i>Patoka Lake</i>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C167+57.5</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		STARTED	COMPLETED
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING %			
			19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVER- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	21.0		core banded & reduced			CD 21.0 SL 54.7
	22.0		v. few sh lam			PD 21.75
	23.0		partial core missing SL (w) 19.4 - 25.8 as indicated by staining on SL lam			Run # 2 Drill 9.1 RRC 9.3 Left 0.15 lost 0.4
	25.0			95.8		
541.85	25.8	IC	greenish gray, soft-mod soft, molding, poorly cemented, silty, loss of st vis. silty. 25.85 - 27.55 badly broken 0.1 ft vert free @ top of IC			
	27.0	SH	greenish gray grading to lt gray; lam w/num ss lam; mod silty; acc staining on ss lam;			
	24.0		core spin & banded			

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DRILLING LOG		DIVISION	INSTALLATION		SHEET 4 OF 8 SHEETS
1. PROJECT <i>Patoka Lake</i>			10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <i>C167+57.5</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING		
			19. SIGNATURE OF INSPECTOR		

ELEVATION <i>a</i>	DEPTH <i>b</i>	LEGEND <i>c</i>	CLASSIFICATION OF MATERIALS (Description) <i>d</i>	% CORE RECOVERY <i>e</i>	BOX OR SAMPLE NO. <i>f</i>	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) <i>g</i>
						End 4/27/76 EL 537.0 CD 32.7
			core reduced banded			DD 30.85
			HA, closed hole, fine			Run # 3
			core spin			Drill 8.35
			poorly developed slicks, 1/2 core			Rec 7.05
535.75	12.0		Zone of 1.0672		Box 2	Left 0.0
			core loss, 31.95-34.25, badly broken & crumbly; num poorly developed slicks; badly water washed; soft, compaction slicks, several HA fines			lost 1.54
						Hole caved in overnight, washed at start of shift 5/30/76
533.45	17.0		fissile, reduced			
			core broken; L-HA fine along B/P; partial core missing; possible core loss	82.3		
		SS	LT grey; Lam w/ num sh. Rem, most Hdy, v. fine uniform grain.			
			core bdl, broken of fine; possible core loss			
532.15	22.0		zone of 0.05672 core loss; lost 37.45-38.65; num HA finest 975 core loss; breccia, clay, sh.			
			HA fine, partial core missing			
529.05	29.0		core spin, possible core loss			
		SH	core banded spin			
528.3	30.0					

ENG FORM 1836 MAR 71

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(TRANSFERRENT)

PROJECT  
*Patoka Lake*

HOLE NO.  
*C167+57.5*

**D-183**

Hole No. C167+57.5

DRILLING LOG		DIVISION		INSTALLATION		SHEET 5 OF 8 SHEETS	
1. PROJECT Patoka Lake				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) C167+57.5				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH 45.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
57.25			core badly broken; zone of 3.15 ft core loss; soft; fissile water washed.			Run #4	
			water washed			Drill 8.0	
			core broken			Rec 7.5	
			stratigraphic contact			Left 0.15	
		LS	LT-med. grey; w/ some staining; Hd; fine; ATGyn; thick bed		Box 2	Lost 0.35	
42.0			LT-med. grey 42.95' - 42.6				
			L.A. SL live open B/p				
25.0			(w); SL sol live open c/p	95.5			
44.0			L.A. SL (w) live B/p				
			core spin on shaly seam	42.6 - 47.5			
45.0			live styl. L.T.C.				
			core spin on open SL (w) B/p				
			open B/p; SL core spin; shaly				
			L.A. shaly seam				
96.0			open (w) shaly B/p; core spin			live core edge 46-47.05	
			L.A. shaly seam			driller drilling too fast causing 6.77 to wobble.	
			fine on core edge, revt				
57.0			sup. concoidal face on core			R 22.65	
			open (w); shaly B/p			SD 47.2	
			L.A. open SL (w) B/p along shaly seam	47.65		Run #5	
42.0			LT styl. L.T.C.			Drill 9.5	
			live B/p break	47.25 - 52.95		Rec 9.55	
			along shaly seam; SL (w)			Left 0.1	
47.0			B/p break along shaly seam		Box 3	Lost 0.0	
52.0			live B/p break along shaly seam				

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PROJECT  
Patoka LakeHOLE NO.  
C167+57.5

D-184

<b>DRILLING LOG</b>		<b>DIVISION</b>	<b>INSTALLATION</b>	<b>SHEET 6</b> OF 6 SHEETS
1. PROJECT <i>Patoka Lake</i>		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)		11. DAY FOR ELEVATION SHOWN (TBM or NSL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <i>C167+57.5</i>		13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE STARTED _____ COMPLETED _____		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			SL core spin on shaley seam			
51.0			series of 2 vert gts, irr; high, stained; SL(W); open; partial core missing			
52.0			open U/p, v. SL core spins			
			core spin on shaley seam	100		
53.0			on shaley SL irr 570.175			
			DK grey sh shaley zone			
54.0			core spin			
			DK grey sh shaley zone			
			DK grey sh shaley shale seam			
55.0			core spin			
			sh shaley zone, DK grey			
56.0						
			DK grey sh shaley zone			
			L.A. 11/12 inch - 12 inch shale seam			22 511.2
57.0			0.03 ft fissile shale seam			DU 56.7
			0.02 ft fissile shale seam			56.5
			DK grey v. shaley w/ num shale seams 56.5-60.65			Run # 6
58.0			break along v thin shale seam			Drill 9.8
			Thin shale seam			Rec 9.7✓
			L.A. open U/p in shaley seam	98.5		LCRT 0.15
			Thin 0.03, L.A. shale seam			LCRT 0.15
59.0			L.A. shale seam, 0.02 ft			
			thin shale seam; SL reduced, 0.15			
			gradational contact			
60.0			0.15 ft shale seam			

<b>DRILLING LOG</b>		DIVISION	INSTALLATION	11010 NO.	SHEET 7 OF 8 SHEETS
1. PROJECT <i>Patoka Lake</i>			10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <i>C167+57.5</i>			13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING		
			19. SIGNATURE OF INSPECTOR		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
527.65			shale zone, limy; thin Bd, mod soft;			
			L.A. contact			
51.0						
			break to fit core box		61.85	
52.0			open 13 1/2 (w), core spin			
			(w) zone			
53.0			open B/p			
			some staining & (w) on rock edges 61.8-64.2		Box 4	
54.0			minor, dk grey shale, zone 64.00 open B/p (w) on rock edge			
			open B/p 64.00			
55.0			L.A. sh grey shale, zone, H.d			
56.0			open B/p in shaly zone			
			water washed, shaly zone			
57.0						
58.0			B/p break with shale zone; small chert nodules on rock edge			
59.0			shale zone, limy; dk grey, v. limy;			
			v. highly fossil 69.45-70.35			



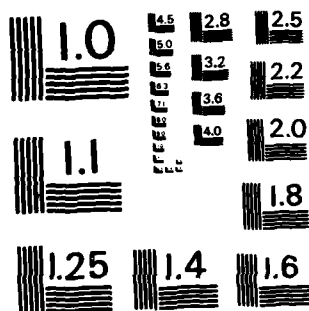
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PATOKA LAKE FOUNDATION REPORT BOOK 4 APPENDIX D  
CONTRACTOR DRILL LOGS(U) ARMY ENGINEER DISTRICT  
LOUISVILLE KY S BARTLETT ET AL. APR 83

3/4

**F/G 8/7**

NL



MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A

DRILLING LOG		DIVISION		INSTALLATION		SHEET 8 OF 8 SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C167+57.5</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE		STARTED COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
21.0			broken <sup>between</sup> 2 in shaley B/lps; core spun, partial core missing; possible core loss				
21.0			shale zone, shaled, dk grey; limy, distinct contacts				
22.0			open B/lp on shaley seam				
22.0			slb in break along shaley seam				
22.0			open B/lp on shaley seam				
23.0			shale seam, in MA lower member				
24.0			sl inw, LA, break w/ cuttings				
24.0			sl inw break w/ cuttings				
25.0			core broken, possible core loss				
25.0			sl inw break w/ cuttings				
25.0			LS seam all B/lps on LA				
26.0			core spin				
26.0			dk grey, thin bed; mod Hf calc; loss goe pyrite etc				
26.0			lost 0.8 ft in hole				
27.0							
28.0							
29.0							
30.0							



DRILLING LOG		DIVISION		INSTALLATION		SHEET 2 OF 2 SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C168+35</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE		STARTED COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
8. DEPTH DRILLED INTO ROCK				19. SIGNATURE OF INSPECTOR			
9. TOTAL DEPTH OF HOLE							
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
	11.0						
	2.0						
	12.0						
	13.0		START Coring (13.95)				
	14.0	OB	LT Brown - buff; clayey w/ weathered rock frags			back pressure when run complete, some return drops; this run cut most drill water lost turn corner, hole ran freely for several minutes after complet- ion of this run.	
	15.0		0.05 ft core loss dist 13.95 - 17.1				
	16.0			99.4			
548.1	17.0		TOIR				
	18.0		OH - LT brown, silty, w/ weathered highly core solution; partial core missing; iron surface, cutting				
	19.0	SS	core broken & fractured core broken & fractured; some drill cuttings; partial core missing. color varies, LT gray to LT brown; some staining also C/Ps 17.1 - 20.7 from approx 8/ps down				
	20.0		small void on core edge V. sandy 17.6 - 18.1				

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PROJECT

D-189

HOLE NO.

C168+35

DRILLING LOG		DIVISION	INSTALLATION		SHEET 3 OF 4 SHEETS	
1. PROJECT <b>Patoka Lake</b>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DAYON FOR ELEVATION <b>IN (TBM or MSL)</b>			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>C168+35</b>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN			
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE			
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVER- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			core sl. water washed 18.5 - 21.3			Run #1
			base of weathering			Drill 10.0
			core disturbed			Rec 8.4
			small void on core edge			Left 1.55
			heavily fractured on core edge			Lost 0.05
			core sl. water washed along sides 4/ps			
			core disturbed, B/ps disrupted			
542.8		IC	SS + mud soft, Grey, highly disturbed fractured in places; some small voids, small cracks			CD 22.4 EL 542.8
			Drill at 27.5 ft core loss, mostly near top contact due to drilling action			DD 23.25
			The core was reduced at bottom of hole due to thrusting, some 666			Run #2
			Small void at 45 zone with a few small cracks	59.6		Drill 8.0
						Rec 6.8
						Left 2.75
						Lost 2.75
						back pressure upon completion of run 2; hole closed into 20 ft
						Run #2 complete
526.6			undisturbed contact - Disturbed zone present near top			
			disturbed zone, sandstone - Disturbed zone, sandstone			
		SS	undisturbed zone 2 ft			
			undisturbed zone 2 ft			

ENG FORM 1836  
MAR 71

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PROJECT

**Patoka Lake**

**D-190**

HOLE NO.



DRILLING LOG		DIVISION	INSTALLATION		SHEET 5 OF 8 SHEETS	
1. PROJECT <b>Patoka Lake</b>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DAY ON FOR ELEVATION SHOWN (YBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>C168+35</b>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE		STARTED	COMPLETED
7. THICKNESS OF OVERBURDEN			17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK			18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE			19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			break to fit core box			
			v. thin shaley parting siltite			
41.0			break to fit core box			
42.0						EL 522.85
			open (w); ivv open B/p; siltite; DH grey, transitional Turbid zone			20 42.45 42.35
43.0						Run #5
						Drill 9.5
						Rec <del>5.9</del> 9.95
						Left <del>0.0</del> 0.15
						Lost 0.0
44.0			open (w) B/p; ivv, LA	100%		
45.0			L.A. (w) Break across zone		44.8	
			ivv; (w) break along shaley siltite			
46.0			base of (w) in LS			565.2
			LS grey 45.9-47.1			42.35
					Box 3	522.85
47.0			siltite; shaley & DH grey below this point			565.2
			LA B/p			35.9
48.0						9.3
49.0			sh (ivv) spin v. shaley 48.6-49.0 on shaley B/p			
50.0			open B/p along thin shaley section			



DRILLING LOG		DIVISION	INSTALLATION		SHEET 6 OF 8 SHEETS	
1. PROJECT <b>Patoka Lake</b>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinate or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>C168+35</b>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE <input checked="" type="checkbox"/> STARTED <input type="checkbox"/> COMPLETED			
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
19. SIGNATURE OF INSPECTOR						
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			open B A?			
			break along irr shaley ss. sh. to, fiss. on dip			
			LA sh. irr break along shaley ss. parting			
						EL 513.5
						SH 8
						CO
			5(w) open B dip			DD 51.95
			LA break across core			
			open, beveled V. shaley			Run # 6
			B/p along shale parting			Drill 5.0
			sl. sh. dip			REC 4.9 ✓
			open dip on shale parting			Left .25
			sh. core spin mud	100%		Lost 0
			sh. core spin on shaley parting			
			shale section		Box 3	
			open B from within shale parting			
			sl. irr open dip on shale parting			
			shale & d; silty			
			water washed			
			shale zone, silty, glass			
			open LA dip			
			V. shaley, LS; mud H. d.			
			open dip on shale section			
			irr LA break along sh. parting			
			shale zone			EL 508.5
						CO
			LA, sh. (w) highly fiss. across			DD 56.95
			core; open			
			sh. core spin on irr open (w) B/p.			Run # 7
			irr fine across core; V. sh. sand. zone			Drill 9.5
			V. irr, LA - irr?; highly, g. (w)			REC 7.5 ✓
			core broken; (w) sh. sub; 5 ft. - 1 ft.			Left 0.0
			sh. core spin on (w) open	100%		Lost 0.0
			B/p			
			open B/p			
			highly irr; V. irr; highly		59.35	
			g. (w) - sh. (w) w/ staining & M. x 7.5			
			open; core broken in part			

DRILLING LOG		DIVISION		INSTALLATION		SHEET 7 OF 8 SHEETS	
1. PROJECT <b>Patoka Lake</b>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>C168+35</b>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE STARTED _____ COMPLETED _____	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			stained buff siltstone, closed				
			core spin on (w) shaly siltstone				
			highly (w) buff				
			sl core spin on (w) shale partings				
			(w) 61.8 - 66.1, Ltg. w/ buff staining on edges				
			sl core spin on sl (w) op B/p		3m		
			stained siltstone, closed		4		
			open (w) B/p				
			open (w); sl sil B/p				
			shaly seam on siltstone, sl spin				
			LA open (w) B/p				
			Highly (w) 65.45 - 65.9				
			sl; (w) shaly siltstone				
			L.A. Highly (w) fine across core				
			low NA fines; core badly broken & fine, some staining				
			(w) of fine fines;				
			shaly sl (w) shaly parting			DDT < D 66.45, EL 440.75	
			0.1 ft of core loss			Run #8	
			highly water washed & reduced shale, 45 ft from			Drill 9.5	
			low open B/p			Rec 8.25	
			thin bed. shaly 45 below		26.2	Left 0.95	
			LA sh seam			Lost 0.3	
			broken				
			shale & zone	96.4			
			broken & reduced shale, seam				



DRILLING LOG		DIVISION	INSTALLATION	Hole No. 6170+25		SHEET 1 OF 8 SHEETS
1. PROJECT Dakota Lake		CRU	10. SIZE AND TYPE OF BIT 1 1/2" Dia. 1 1/2" Dia.	11. DATUM FOR ELEVATION SHOWN (FSM or MSL) MSL		
2. LOCATION (Coordinates or Station) Sta. 170+25			12. MANUFACTURER'S DESIGNATION OF DRILL M-10 2-51			
3. DRILLING AGENCY Continental Drilling Co.			13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED — UNDISTURBED —			
4. HOLE NO. (As shown on drawing title and file number) C170+25			14. TOTAL NUMBER CORE BOXES 4			
5. NAME OF DRILLER D. Johnson			15. ELEVATION GROUND WATER —			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED — DEG. FROM VERT.			16. DATE HOLE STARTED 9/13/76 COMPLETED 9/23/76			
7. THICKNESS OF OVERBURDEN ?			17. ELEVATION TOP OF HOLE 522.3			
8. DEPTH DRILLED INTO ROCK ?			18. TOTAL CORE RECOVERY FOR BORING 99.1			
9. TOTAL DEPTH OF HOLE 76.1			19. SIGNATURE OF INSPECTOR J. Bailett			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
						<p>drilled to 24.8 ft when 1 set 254 ft of casing then drilled in casing to 25.1 ft and started coring at this depth.</p> <p>Did not sample TOR contact</p> <p>instructed contractor to drill to 15 ft and attempt to core from there 25.4 ft to 15 ft and started coring. did not recover any core in 1 ft so back down to from rock against inspection wishes and started coring from there.</p> <p>Water Test.</p> <p>before contractor could get back to Water Test (Jan 77); Some one pulled casing from hole and hole collapsed. Consequently no water test or sampling.</p>



DRILLING LOG		DIVISION		INSTALLATION		SHEET 3 OF 9 SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C170+05</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input checked="" type="checkbox"/> INCLINED    DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE    STARTED    COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING    %			
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH 20. b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
21							
22							
23							
24							
			STOUT coring 24.65'				
			L-core missing				
25			highly (w) B/p			Drilled casing to 25.1 before coring	
			L.A. B/p between sh & ss lens			Run #1	
			soft shale seams			Drill 10.45	
26			shale zone			REC <del>10.35</del>	
			SS greenish-med gray; lami- thin bed. w soft mud clay, ss is well cemented.			Left 0.1	
			L.A. fine sand came to B/P	100%		Lost 0.0	
			v soft shale seam				
540.55			V. badly broken assembly				
20			IR indurated clay; dk gray, v. soft - soft; no bed.ing, scale. bnd.ing; v. poorly cemented, v. silty				
20.0							



DRILLING LOG		DIVISION	INSTALLATION		Hole No. <b>C170+05</b>	
1. PROJECT <b>Patoka Lake</b>		10. SIZE AND TYPE OF BIT		SHEET <b>5</b> OF 8 SHEETS		
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		12. MANUFACTURER'S DESIGNATION OF DRILL		
3. DRILLING AGENCY		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED	
4. HOLE NO. (As shown on drawing title and file number) <b>C170+05</b>		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		
5. NAME OF DRILLER		16. DATE HOLE		STARTED	COMPLETED	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
7. THICKNESS OF OVERBURDEN		19. SIGNATURE OF INSPECTOR		%		
8. DEPTH DRILLED INTO ROCK		9. TOTAL DEPTH OF HOLE		%		
ELEVATION a	DEPTH 40.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	41		dk grey hd. zone			
	42		100 dk grey 5' zone & sd (w) hd zone 42.1 - 46.8			
	43		100 open B/p on shaley seam; dk (w) 0.05 ft about below; buff L.A. open, sl ipr B/p on shaley seam; dk (w) 100 house break L.A. Bldg 42.0-43.35			
1.95	44					
4.5	45					
	46		sl 100 open B/p on 7' thin shale seam			DDHD 45.3 at 523.7
4.8	47		L.A. 100 break along shaley, STYOLITE			Run #3
	48		break along shaley, STYOLITE			Drill 10.3
	49		100 break to 5.7 zone break			Rec 10.3 ✓
	50		vert			Left 0.0
	51		vert, skinned closed 99 near core edge, tight	100		Lost 0.0
	52		100 house break along shaley STYOLITE			
5.75	53		dk grey & shaley 48.6 - 52.2			
	54		100 house break along shaley STYOLITE			



DRILLING LOG		DIVISION		INSTALLATION		Hole No.	
1. PROJECT <i>PaToka Lake</i>		10. SIZE AND TYPE OF BIT		SHEET 6 OF 8 SHEETS			
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)					
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL					
4. HOLE NO. (As shown on drawing title and file number) <i>C170+05</i>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED		UNDISTURBED	
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES					
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		16. DATE HOLE		STARTED	
7. THICKNESS OF OVERBURDEN		17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		COMPLETED	
8. DEPTH DRILLED INTO ROCK		19. SIGNATURE OF INSPECTOR					
9. TOTAL DEPTH OF HOLE							
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			horiz breccia along thin slt sh seam				
			horiz breccia along thin shaly seam				
51			horiz breccia along thin 0.01 ft shaly seam				
52			hor breccia along hor 2 57.06.72				
			no stylite				
53							
54			breccia to 6.78 section		54.2		
55							
56			0.02 ft shale seam		Box 3	UDICD 55.6 EL 513.4	
			open B/P			Run # 4	
			thin soft shale seam			Drill 10.3	
57			shale seam			Rec 10.15	
			shale seam			Ref 0.0	
			shale seam; thin bed; stagnant	98.5		Lost 0.15	
58							
59			0.15 ft 2 core loss				
			rounded scale seams; Bding disordered, soft, slates				

DRILLING LOG		DIVISION		INSTALLATION		NO. 10 NO. 5110705 SHEET 7 OF 8 SHEETS	
1. PROJECT Patoke Lake				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (FBN or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) C170+05				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			break along shaley stpolicite				
			break to f.7 core box				
61							
			irr LA break across core, Buff; stained, sh clay clastic, 7, SL (w)		Box 3		
			irr S/P break, stained sh SL (w)				
63			phgry, & sh shaley 67.0-67.7				
64			irr loose break along shaley, stpolicite				
			break along sh between 12/3				
65							
			break along irr. stpolicite				
			shaley sandy, broken, part missing			DDED 65.9 EL 503.1	
66						Run # 5 Dr-LL 10.3 Roc 10.01 Lst 0.2 Lost 0.0	
67			closed irr stpolicite				
			phgry, & sh shaley 100 67.6-67.7				
68							
			break to f.7 core box		67		
			SL irr run 100				
69		SH	irr phgry, thin bedded, v. limy, foss, mud soft		Box 4		
70							

DRILLING LOG		DIVISION		INSTALLATION		SHEET 8 OF 8 SHEETS	
1. PROJECT <i>PaToka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>C170+05</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED    UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.				16. DATE HOLE    STARTED    COMPLETED		17. ELEVATION TOP OF HOLE	
7. THICKNESS OF OVERBURDEN				18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR	
8. DEPTH DRILLED INTO ROCK							
9. TOTAL DEPTH OF HOLE							
ELEVATION a	DEPTH 70.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			LS zone				
			LS, top contact, zone				
			quartzitic contact				
	71	LS	LA contact LT - med gray, Hd, foss, thinly bedded;				
	72	SH	Dk gray; med soft; thin bed; foss; limy; shales sl on exposure.				
	73						
	74						
	75						
493.0	76		Left 0.2 ft in hole Bottom of hole 76.2			00.76.2	50 76.0
	77						



DRILLING LOG		DIVISION	INSTALLATION		SHEET OF SHEETS	
1. PROJECT <i>Patch Lake</i>			10. SIZE AND TYPE OF BIT <i>3 1/2 in. Reamers</i>		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) <i>MSL</i>	
2. LOCATION (Coordinates or Station) <i>Sta 7+80.42 FT. LT. (see sketch)</i>			12. MANUFACTURER'S DESIGNATION OF DRILL <i>Joy, Air-Trac</i>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED <i>—</i> UNDISTURBED <i>—</i>	
3. DRILLING AGENCY <i>Hillman, Conn. Co.</i>			14. TOTAL NUMBER CORE BOXES <i>—</i>		15. ELEVATION GROUND WATER <i>—</i>	
4. HOLE NO. (As shown on drawing title and file number) <i>A7-2</i>			16. DATE HOLE STARTED <i>8/3/77</i> COMPLETED <i>8/3/77</i>		17. ELEVATION TOP OF HOLE <i>569.5</i>	
5. NAME OF DRILLER <i>Schneider</i>			18. TOTAL CORE RECOVERY FOR BORING <i>—</i>		19. SIGNATURE OF INSPECTOR <i>J. J. Smith</i>	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED <i>—</i> DEG. FROM VERT.						
7. THICKNESS OF OVERBURDEN <i>2</i>						
8. DEPTH DRILLED INTO ROCK <i>35</i>						
9. TOTAL DEPTH OF HOLE <i>37</i>						
ELEVATION a	DEPTH D.O. b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVER- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		<i>OB</i>	<i>Sand, Grav</i>			<i>Tentative Location, Sta 110, 50 FT. LT.</i>
		<i>SS</i>	<i>Tan, occ clay seams</i>			
	<i>10</i>					
	<i>20</i>					
	<i>30</i>					
<i>533.6</i>		<i>SH</i>	<i>Soft, grey clay, silty</i>	<i>35.5</i>		
<i>532.5 ±</i>			<i>Bottom of Hole 37.0</i>			
	<i>40</i>					

DRILLING LOG		DIVISION		INSTALLATION		SHEET 1 OF 1 SHEETS	
1. PROJECT Pata Lake				10. SIZE AND TYPE OF BIT 3" - 11" - 24"			
2. LOCATION (Coordinates or Station) Sta B+0.5, 47.3 ft RT. (Intersection)				11. DATUM FOR ELEVATION SHOWN (FBM or MSL) MSL			
3. DRILLING AGENCY Holloway Const. Co.				12. MANUFACTURER'S DESIGNATION OF DRILL 2" - 11" - 24"			
4. HOLE NO. (As shown on drawing title and file number) AT-3				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED - UNDISTURBED -			
5. NAME OF DRILLER Schneider				14. TOTAL NUMBER CORE BOXES -			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEG. FROM VERT.				15. ELEVATION GROUND WATER -			
7. THICKNESS OF OVERBURDEN 2				16. DATE HOLE STARTED 8/12/77 COMPLETED 8/13/77			
8. DEPTH DRILLED INTO ROCK 36				17. ELEVATION TOP OF HOLE 551.7			
9. TOTAL DEPTH OF HOLE 38				18. TOTAL CORE RECOVERY FOR BORING -			
				19. SIGNATURE OF INSPECTOR J. J. J. J.			
ELEVATION e	DEPTH d	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
		OB	Brn, sandy			Tentative Location Sta 1+0, 50 ft. RT.	
		SS	Tan - Rusty brn, soft				
	10						
	20						
	30		Tool drop 24.4-29.4, hole caving.				
518.5			mad seam 29.4-32.2 33.2				
484		LS	Grey, Hd.			Wet hole	
513.7	40		Bottom of Hole 38.2				

DRILLING LOG		DIVISION	INSTALLATION		SHEET 1 OF 1 SHEETS	
1. PROJECT PATOKA LAKE 75-C-0050			10. SIZE AND TYPE OF BIT 3"			
2. LOCATION (Coordinates or Station) E+23 16.4' LT. 3 ERL			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL			
3. DRILLING AGENCY H. H. W. Co.			12. MANUFACTURER'S DESIGNATION OF DRILL Joy Air Trac			
4. HOLE NO. (As shown on drawing title and file number) AT-4			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES 0		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE STARTED 5-3-77 COMPLETED 8-3-77			
7. THICKNESS OF OVERBURDEN			17. ELEVATION TOP OF HOLE 560.02			
8. DEPTH DRILLED INTO ROCK			18. TOTAL CORE RECOVERY FOR BORING NONE			
9. TOTAL DEPTH OF HOLE 66.5'			19. SIGNATURE OF INSPECTOR Lochen A. Chintum			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
560.0	3.0		OUB clayey sand	0%	None	See AT-1 For baseline location
	23.3		Sandstone h. wd. s. rd br. to yel. br.			
			Soft area sand & clay?			Lost drilling air @ 23.3'
530.0	30.3		Limestone h.			
	30.6		Soft area sand & clay?			
517.7	42.3		Drilled hard like limestone			
509.7	50.5		Drilled soft like shale			
	66.5		Tools covered with mud when pulled.			

DRILLING LOG		PROJECT		SHEET		
1. PROJECT <i>Patoka Lake</i>		10. SIZE AND TYPE OF BIT <i>3"</i>		OF / SHEETS		
2. LOCATION (Coordinates or Station) <i>8+77.5-65' LT of Rt</i>		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) <i>MSL</i>				
3. DRILLING AGENCY <i>Holloway Constr. Co. 75-C-0050</i>		12. MANUFACTURER'S DESIGNATION OF DRILL <i>Tex Air Trac</i>				
4. HOLE NO. (As shown on drawing title and file number) <i>AT-5</i>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED		
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES				
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER				
7. THICKNESS OF OVERBURDEN		16. DATE HOLE STARTED COMPLETED <i>8/3/77</i> <i>8/3/77</i>				
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE <i>570.4</i>				
9. TOTAL DEPTH OF HOLE <i>42.3'</i>		18. TOTAL CORE RECOVERY FOR BORING <i>3</i>				
		19. SIGNATURE OF INSPECTOR <i>John A. Christman</i>				
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
<i>570.4</i>			<i>OVB</i>	<i>0</i>	<i>None</i>	<i>See AT-1 for</i>
	<i>1.0</i>		<i>Clayey Sand</i>			<i>Bt location</i>
			<i>Sandstone s. h. and</i>			
			<i>rd. br to yel. cr.</i>			
	<i>32.0</i>		<i>Soft Area</i>			<i>Lost drilling Air</i>
			<i>possible Cavity</i>			<i>@ 32.0'</i>
	<i>36.5</i>					
<i>533.4</i>	<i>37.0</i>		<i>Sandstone</i>			
			<i>Limestone h.</i>			
<i>5.8'</i>						
<i>527.6</i>	<i>42.0</i>					





DRILLING LOG		DIVISION		INSTALLATION		Hole No. 71-1	
PROJECT		PATOKA		PATOKA		SHEET 1 OF 1 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DAYUM FOR ELEVATION SHOWN (TBM - MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN			
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE			
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS	
a	b	c	d	e	f	g	
		OB	3m, Sandy			Tentative Location: STA 1+0, 25 ft. LT.	
		SS	tan - Rust brn, soft				
	10						
	20						
	30						
524.8			Tool drop 21.3-24.4				
			Soft clay seam 24.4-30.5				
7.5		LS	Grey, Hcl			dry hole	
517.3			Bottom of Hole 31.0				
	40						

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
1. PROJECT		ORD		Patoka		OF 1 SHEETS	
2. LOCATION (Coordinates or Station)		Patoka Lake		10. SIZE AND TYPE OF BIT		3 H.A. 1964-1965	
3. DRILLING AGENCY		Hillman, C. & Co.		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		MSL	
4. HOLE NO. (As shown on drawing title and file number)		A7-8		12. MANUFACTURER'S DESIGNATION OF DRILL		801. Air-True	
5. NAME OF DRILLER		Schneider		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED — UNDISTURBED —	
6. DIRECTION OF HOLE		<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		14. TOTAL NUMBER CORE BOXES		—	
7. THICKNESS OF OVERBURDEN		2'		15. ELEVATION GROUND WATER		—	
8. DEPTH DRILLED INTO ROCK		27		16. DATE HOLE		STARTED 8/3/77 COMPLETED 2/3/77	
9. TOTAL DEPTH OF HOLE		29		17. ELEVATION TOP OF HOLE		557.0	
				18. TOTAL CORE RECOVERY FOR BORING		— %	
				19. SIGNATURE OF INSPECTOR		J. H. H. H.	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
		OB	Bn, Sand			Tentative Location: Sta 140, 10 ft RT.	
		SS	Tan - Rusty Bn, soft.				
534.3							
533.8		SH	Grey, Md	23.5			
510.4		LS	Grey, Md	24.0			
528.8 ±			mud seam 26.9-27.5			dry hole	
	30		bottom of Hole 29.0				

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS		
1. PROJECT <i>Pataka Lake 75-C-0050</i>		<i>URD</i>	10. SIZE AND TYPE OF BIT <i>3"</i>			
2. LOCATION (Coordinates or Station) <i>BL 8+91-57' Rt.</i>			11. GAYUM FOR ELEVATION SHOWN (FSM - MSL) <i>MSL</i>			
3. DRILLING AGENCY <i>Hull County Constr. Co.</i>			12. MANUFACTURER'S DESIGNATION OF DRILL <i>Joy Air Tool</i>			
4. HOLE NO. (As shown on drawing title and file number) <i>AT-9</i>			13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN <input type="checkbox"/> DISTURBED <input type="checkbox"/> UNDISTURBED			
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN <i>3</i>			16. DATE HOLE STARTED <i>8/3/77</i> COMPLETED <i>8/3/77</i>			
8. DEPTH DRILLED INTO ROCK <i>22.5</i>			17. ELEVATION TOP OF HOLE <i>550.1</i>			
9. TOTAL DEPTH OF HOLE <i>25.5'</i>			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR <i>James A. Christman</i>			
ELEVATION <i>550.1</i>	DEPTH <i>0.0</i>	LEGEND <i>c</i>	CLASSIFICATION OF MATERIALS (Description) <i>d</i>	% CORE RECOV- ERY <i>e</i>	BOX OR SAMPLE NO. <i>f</i>	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) <i>g</i>
	<i>3.0</i>		<i>OUV</i>			<i>See AT-1 log for BL location</i>
			<i>Sandstone s., hi. wd. rd-br.</i>			
<i>531.7</i>	<i>19.4</i>		<i>LIMESTONE</i>			<i>Lost drilling Air @ 20.0'</i>
<i>530.1</i>	<i>20.0</i>		<i>Soft Area</i>			
	<i>7.1'</i>					
	<i>25.0</i>		<i>Limestone h.</i>			
<i>524.6</i>	<i>25.5</i>					



DRILLING LOG		DIVISION	INSTALLATION	SHEET OF 1 SHEETS		
1. PROJECT <i>Pataka Lake 75-C-0050</i>		<i>RD</i>	<i>ORLCN</i>			
2. LOCATION (Coordinates or Station) <i>B4 8796 - 80.6' Rt.</i>			10. SIZE AND TYPE OF BIT <i>3"</i>			
3. DRILLING AGENCY <i>Hill Country Const. Co.</i>			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) <i>MSL</i>			
4. HOLE NO. (As shown on drawing title and file number) <i>AT-11</i>			12. MANUFACTURER'S DESIGNATION OF DRILL <i>Joy Air Trac</i>			
5. NAME OF DRILLER			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED UNDISTURBED		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			14. TOTAL NUMBER CORE BOXES			
7. THICKNESS OF OVERBURDEN			15. ELEVATION GROUND WATER			
8. DEPTH DRILLED INTO ROCK			16. DATE HOLE	STARTED COMPLETED		
9. TOTAL DEPTH OF HOLE <i>32.0</i>			17. ELEVATION TOP OF HOLE <i>547.1</i>			
			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR <i>Loan A. Christman</i>			
ELEVATION <i>547.1</i>	DEPTH <i>0.0</i>	LEGEND <i>c</i>	CLASSIFICATION OF MATERIALS (Description) <i>d</i>	% CORE RECOVER- ERY <i>e</i>	BOX OR SAMPLE NO. <i>f</i>	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) <i>g</i>
	<i>2.5</i>		<i>OUR.</i>	<i>0</i>	<i>0</i>	
	<i>25.0</i>		<i>Sandstone hi. wd., H. br.</i>			
<i>519.8</i>	<i>27.3</i>		<i>Moist Reddish-brown sand.</i>			
<i>4.7±</i>			<i>Limestone h., water in hole.</i>			
<i>515.1±</i>	<i>32.0</i>					

DRILLING LOG		DIVISION		INSTALLATION		SHEET 1 OF 1 SHEETS	
1. PROJECT <i>Pata Lake</i>		CND		<i>Pata Lake, 30 ft</i>			
2. LOCATION (Coordinates or Station) <i>Sta 3+91.2 : 10.5 ft PT (see sketch)</i>				10. SIZE AND TYPE OF BIT <i>2 in. 1/2 in. 3/4 in.</i>			
3. DRILLING AGENCY <i>Halloway Const. Co.</i>				11. DATUM FOR ELEVATION SHOWN (TBM or MSL) <i>MSL</i>			
4. HOLE NO. (As shown on drawing title and file number) <i>A7-12</i>				12. MANUFACTURER'S DESIGNATION OF DRILL <i>2 in. 1/2 in. TAC</i>			
5. NAME OF DRILLER <i>Schneider</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				14. TOTAL NUMBER CORE BOXES		-	
7. THICKNESS OF OVERBURDEN <i>2</i>				15. ELEVATION GROUND WATER		-	
8. DEPTH DRILLED INTO ROCK <i>43</i>				16. DATE HOLE		STARTED <i>8/13/77</i>	COMPLETED <i>8/13/77</i>
9. TOTAL DEPTH OF HOLE <i>45</i>				17. ELEVATION TOP OF HOLE <i>551.4</i>			
				18. TOTAL CORE RECOVERY FOR BORING		%	
				19. SIGNATURE OF INSPECTOR <i>A. J. Hall</i>			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
		OB	3 in. Sand			Tentative location Sta 3+2, 50 ft PT	
		SS	Thin - Rust brn				
	10						
	20						
	30		Tool drop, 22.0-24.5				
			Soft, w/clay mud, 24.5-33.6				
517.8			33.6				
		LS	Grey, Hd				
			Tool drop 35.0-39.3 (CAVITY)			WET @ 27 ft	
12.9 ±	40						
505.9							
506.4		SH	Forecast grey	44.5			
	50		Bottom of Hole 45				

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
1. PROJECT <i>Patzka Lake 75-C-0050</i>		<i>ORD</i>		<i>DRLCZ</i>		<i>OF 1 SHEETS</i>	
2. LOCATION (Coordinates or Station) <i>B+ 8+35.2 - 6.5' RT.</i>				10. SIZE AND TYPE OF BIT <i>3"</i>		11. DATUM FOR ELEVATION SHOWN (TBM = MSL) <i>MSL</i>	
3. DRILLING AGENCY <i>Holloway Constr. Co.</i>				12. MANUFACTURER'S DESIGNATION OF DRILL <i>Jay All Trac</i>			
4. HOLE NO. (As shown on drawing title and file number) <i>AT-13</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE STARTED <i>8/3/77</i> COMPLETED <i>8/3/77</i>			
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE <i>556.2</i>			
9. TOTAL DEPTH OF HOLE <i>37.0'</i>				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR <i>For Mr. R. Christman</i>			

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
<i>556.2</i>	<i>0.0</i>					
	<i>4.0</i>		<i>OUB</i>			
	<i>28.0</i>		<i>Sandstone h. wd. H. to rd br</i>			
	<i>34.0</i>		<i>Soft Area.</i>			
<i>520.2</i>	<i>36.0</i>		<i>Clayey Sand Wet</i>			
<i>519.2</i>	<i>37.0</i>		<i>Limestone h.</i>			



Line Y Hole No. AT-14

DRILLING LOG		DIVISION	INSTALLATION		SHEET	
1. PROJECT Patterson Lake 75-C-0050		ORD	ORLED		1 OF 1 SHEETS	
2. LOCATION (Coordinates or Station) 84 10+80.5 - 33' LT.			10. SIZE AND TYPE OF BIT 1 1/2"			
3. DRILLING AGENCY Holloway Constr. Co.			11. DATUM FOR ELEVATION SHOWN (TBM or B.M.) M.S.L.			
4. HOLE NO. (As shown on drawing title and file number)			12. MANUFACTURER'S DESIGNATION OF DRILL Joy Air Trac			
5. NAME OF DRILLER			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			14. TOTAL NUMBER CORE BOXES			
7. THICKNESS OF OVERBURDEN			15. ELEVATION GROUND WATER			
8. DEPTH DRILLED INTO ROCK			16. DATE HOLE 8/12/77		STARTED COMPLETED 5/13/77	
9. TOTAL DEPTH OF HOLE 55.8'			17. ELEVATION TOP OF HOLE 560.2			
			18. TOTAL CORE RECOVERY FOR BORING		%	
			19. SIGNATURE OF INSPECTOR Loren A. Christman			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
560.2	0.0					
	4.0		OUV			See AT-1 log for 84 location
	8.0		Sandstone v. hi wd.			
	38.0		Sandstone mod. to hi. wd, rd-br.			
	43.3		Soft Area			Lost return at drilling air @ 38.6
516.9	43.3		Limestone hard.			
	40.0					
512.9	47.3		Wet soft material.			
	55.8					
509.4	55.8					

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
		DSD		Pataha Lake		OF 1 SHEETS	
1. PROJECT Pataha Lake				10. SIZE AND TYPE OF BIT 3 inch specification			
2. LOCATION (Coordinates or Station) Sta 9+86, 1157 LT. (See sketch)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL			
3. DRILLING AGENCY Halloway, Const Co.				12. MANUFACTURER'S DESIGNATION OF DRILL GCP, HIR-TRAC			
4. HOLE NO. (As shown on drawing title and file number) AT-15				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED — UNDISTURBED —			
5. NAME OF DRILLER Schneider				14. TOTAL NUMBER CORE BOXES —			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER —			
7. THICKNESS OF OVERBURDEN 2				16. DATE HOLE STARTED 8/3/77 COMPLETED 8/3/77			
8. DEPTH DRILLED INTO ROCK 27				17. ELEVATION TOP OF HOLE 554.9			
9. TOTAL DEPTH OF HOLE 27				18. TOTAL CORE RECOVERY FOR BORING — %			
				19. SIGNATURE OF INSPECTOR J. H. Haillet			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
		SB	crn, sandy				
		SS	Tan - Puc - brn, soft				
	10						
	20						
			Tool drop 21-25.4				
529.5			25.4				
3.62		LS	Grey, Hd				
525.9	30		Bottom of Hole 29.3				

25 *Knock Hill at 60 CONTAIN LINE 4* Hole No. *AT-16*

DRILLING LOG		DIVISION	INSTALLATION		SHEET	
		<i>ORD</i>	<i>ORLCD</i>		OF 1 SHEETS	
1. PROJECT <i>Potomac Lake</i>			10. SIZE AND TYPE OF BIT <i>3"</i>			
2. LOCATION (Coordinates or Station) <i>BL 10+81 - 81.0' LT.</i>			11. DAYUM FOR ELEVATION SHOWN (TBM or MSL) <i>MSL</i>			
3. DRILLING AGENCY <i>Holloway Constr. Co.</i>			12. MANUFACTURER'S DESIGNATION OF DRILL <i>Tail Air Trac</i>			
4. HOLE NO. (As shown on drawing title and site number) <i>AT-16</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED _____ UNDISTURBED _____			
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE STARTED _____ COMPLETED _____			
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE <i>557.0</i>			
9. TOTAL DEPTH OF HOLE <i>51.5'</i>			18. TOTAL CORE RECOVERY FOR BORING _____ %			
19. SIGNATURE OF INSPECTOR <i>James H. Christman</i>						
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			<i>OUB</i>			
	<i>6.5</i>		<i>Sandstone hi. nd. rd-br to yel. br.</i>			
<i>522.0</i>	<i>35.0</i>		<i>Moist Sand</i>			
<i>509.7</i>	<i>47.3</i>		<i>Wet Sand.</i>			
			<i>Limestone cobbles and mud.</i>			<i>Encountered a lot of water @ 36.0'. Blow test simultaneous, still coming in. making water; blue water, white under effect of air pressure. Possible collapsed zone or</i>
<i>505.5</i>	<i>51.5</i>					

DRILLING LOG		DIVISION		INSTALLATION		SHEET 1 OF 1 SHEETS	
1. PROJECT Patoke Lake				10. SIZE AND TYPE OF BIT 1 1/2" Dia			
2. LOCATION (Coordinates or Station) Sta 9+43, 26 ft LT (See sketch)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL			
3. DRILLING AGENCY Hillman Const Co.				12. MANUFACTURER'S DESIGNATION OF DRILL Hillman			
4. HOLE NO. (As shown on drawing title and file number) AT-17				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED UNDISTURBED			
5. NAME OF DRILLER Sennel				14. TOTAL NUMBER CORE BOXES -			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER -			
7. THICKNESS OF OVERBURDEN 2				16. DATE HOLE STARTED 2/3/77 COMPLETED 2/3/77			
8. DEPTH DRILLED INTO ROCK 21				17. ELEVATION TOP OF HOLE 557.7			
9. TOTAL DEPTH OF HOLE 23				18. TOTAL CORE RECOVERY FOR BORING -			
				19. SIGNATURE OF INSPECTOR J. J. J. J.			
ELEVATION 557.7	DEPTH 0.0	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
		OB	Brn, Sandy			Total core location 3+0, 10 ft	
		SS	Tan-Rust Brn, soft				
	10						
	20	SH	Grey, (w), soft 20.0				
536.9	18.0	LS	Grey, Hcl 24.2				
536.5							
539.7			Bottom of Hole 23.0				
	30						

<b>DRILLING LOG</b>		DIVISION URD	INSTALLATION 2nd R. off	SHEET 1 OF 1 SHEETS
1. PROJECT Parake Lake		10. SIZE AND TYPE OF BIT 3 inch - percussion		
2. LOCATION (Coordinate or Station) Sta 11+82, 33.7 ft LT. (See sketch)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3. DRILLING AGENCY Hillman Const. Co.		12. MANUFACTURER'S DESIGNATION OF DRILL 901, Air-Trace		
4. HOLE NO. (As shown on drawing title and file number) A7-18		13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER Schnicker		14. TOTAL NUMBER CORE BOXES -		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DES. FROM VERT.		15. ELEVATION GROUND WATER -		
7. THICKNESS OF OVERBURDEN 2		16. DATE MOLE STARTED 8/3/77 COMPLETED 8/3/77		
8. DEPTH DRILLED INTO ROCK 51.5		17. ELEVATION TOP OF HOLE 560.6		
9. TOTAL DEPTH OF HOLE 53.5		18. TOTAL CORE RECOVERY FOR BORING -		
		19. SIGNATURE OF INSPECTOR J. J. R.		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
560.6	0					
	10	OB SS	Brown sandy Tan - Rust Brn, soft			Test pit location Sta 9
542.3	18.3		Tool drop 15.2 - 18.3 18.3			
	20	LS	Grey, Hd			
29.9 ±	32.5		(W) seam @ 32.5			
	35.5 - 36		soft seam 35.5 - 36			
	36.5 - 37		soft seam 36.5 - 37			
	37.5 - 38.5		Tool drop 37.5 - 38.5			
512.4 ±	48.2		48.2			
	50	SH	Greenish grey, mod hd			dry hole
507.1 ±			Bottom of Hole 53.5			

DRILLING LOG		DIVISION		INSTALLATION		SHEET 1 OF 1 SHEETS	
1. PROJECT Patch Lake 75-C-0050		ORD		DRLCD			
2. LOCATION (Coordinates or Station) BL 10+55.5-15' RT.				10. SIZE AND TYPE OF BIT 3"		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
3. DRILLING AGENCY Hullaway Constr. Co.				12. MANUFACTURER'S DESIGNATION OF DRILL Joy Air Trac			
4. HOLE NO. (As shown on drawing title and file number) AT-19				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE STARTED 8/3/77		COMPLETED 8/3/77	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE 553.6			
9. TOTAL DEPTH OF HOLE 35.5'				18. TOTAL CORE RECOVERY FOR BORING		%	
				19. SIGNATURE OF INSPECTOR F. H. Christian			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
553.6	0.0						
	4.0		OUR				
			Sandstone mod to hi. wd.				
520.6	33.0						
2.5'			Limestone h. dry				
518.1	35.5						

DRILLING LOG		DIVISION	INSTALLATION		SHEET 1 OF 1 SHEETS	
1. PROJECT <i>Pataka Lake 75-C-0050</i>		<i>ORD</i>	<i>ORLCD</i>			
2. LOCATION (Coordinates or Station) <i>B<sup>L</sup> 10+90 - 40' RT.</i>			10. SIZE AND TYPE OF BIT <i>3"</i>		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) <i>MSL</i>	
3. DRILLING AGENCY <i>Holloway Constr. Co.</i>			12. MANUFACTURER'S DESIGNATION OF DRILL <i>Joy Air Track</i>			
4. HOLE NO. (As shown on drawing title and file number) <i>AT-20</i>			13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE STARTED <i>8/3/77</i> COMPLETED <i>9/3/77</i>			
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE <i>549.9</i>			
9. TOTAL DEPTH OF HOLE <i>41.3'</i>			18. TOTAL CORE RECOVERY FOR BORING <i>3</i>			
19. SIGNATURE OF INSPECTOR <i>A. Christman</i>						
ELEVATION <i>549.9</i>	DEPTH <i>b</i>	LEGEND <i>c</i>	CLASSIFICATION OF MATERIALS (Description) <i>d</i>	% CORE RECOVERY <i>e</i>	BOX OR SAMPLE NO. <i>f</i>	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) <i>g</i>
	<i>3.0</i>		<i>OVB</i>			
			<i>Sandstone H. br.</i>			
	<i>23.0</i>		<i>Moist dark sand</i>			<i>lost return of drilling air @ 24.0</i>
	<i>24.0</i>		<i>Soft Area</i>			
	<i>29.5</i>		<i>Drilled like soft sandstone boulders (collapse area?)</i>			
<i>511.9</i>	<i>38.0</i>		<i>Limestone h.</i>			
<i>511.4</i>	<i>38.5</i>		<i>Limestone with soft and hard areas</i>			
<i>3.3' ±</i>						
<i>508.6</i>	<i>41.3</i>					

DRILLING LOG		DIVISION		INSTALLATION		SHEET / OF / SHEETS	
1. PROJECT <i>Patch Lake</i>				10. SIZE AND TYPE OF BIT <i>MSL</i>			
2. LOCATION (Coordinate or Station) <i>Sta 540, 541, 542 (see sketch)</i>				11. DAYUM FOR ELEVATION SHOWN (TBM or MSL) <i>MSL</i>			
3. DRILLING AGENCY <i>Michigan Dept. of Geol.</i>				12. MANUFACTURER'S DESIGNATION OF DRILL <i>Geo. McGraw-Hill</i>			
4. HOLE NO. (As shown on drawing title and file number) <i>47-21</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED <i>—</i>	
5. NAME OF DRILLER <i>Schneider</i>				14. TOTAL NUMBER CORE BOXES		14. UNDISTURBED <i>—</i>	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		15. DATE HOLE STARTED <i>4/12/77</i> COMPLETED <i>4/12/77</i>	
7. THICKNESS OF OVERBURDEN <i>2.2</i>				16. ELEVATION TOP OF HOLE <i>552.5</i>		17. ELEVATION TOP OF HOLE <i>552.5</i>	
8. DEPTH DRILLED INTO ROCK <i>5</i>				18. TOTAL CORE RECOVERY FOR BORING <i>—</i>		18. SIGNATURE OF INSPECTOR <i>[Signature]</i>	
9. TOTAL DEPTH OF HOLE <i>10.5</i>							
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of seal, etc., if significant) g	
		CB	Brn, Sandy			Note - see location Sta 540, 541, 542, P.	
		SS	Thin - Red brn, soft				
541.3	10	SH	Grey, soft 11.3				
541.1			11.5				
7'±		LS	Grey, Hd				
			(w) seam, 15.5, of brn				
534.1	20		OK brn, (w) seam, 17.5			dry hole	
			Bottom of Hole 18.5				



DRILLING LOG		DIVISION	INSTALLATION	FIG. NO. 111-22		SHEET OF 1 SHEETS
1. PROJECT <i>Petaka Lake</i>		10. SIZE AND TYPE OF BIT <i>MSL</i>		11. DATUM FOR ELEVATION SHOWN (FSM or MSL) <i>MSL</i>		
2. LOCATION (Coordinates or Station) <i>Sta 5+2.5 RT (See Sketch)</i>		12. MANUFACTURER'S DESIGNATION OF DRILL <i>Sol Air-Tool</i>		13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		
3. DRILLING AGENCY <i>Hillman Const. Co.</i>		14. TOTAL NUMBER CORE BOXES <i>---</i>		15. ELEVATION GROUND WATER <i>---</i>		
4. HOLE NO. (As shown on drawing title and file number) <i>AT-22</i>		16. DATE HOLE STARTED <i>4/13/77</i> COMPLETED <i>4/13/77</i>		17. ELEVATION TOP OF HOLE <i>55.07</i>		
5. NAME OF DRILLER <i>Schneider</i>		18. TOTAL CORE RECOVERY FOR BORING <i>---</i>		19. SIGNATURE OF INSPECTOR <i>...</i>		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED <i>---</i> DEG. FROM VERT.		7. THICKNESS OF OVERBURDEN <i>2</i>		8. DEPTH DRILLED INTO ROCK <i>29.5</i>		
9. TOTAL DEPTH OF HOLE <i>30.5</i>						

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		SB	Brn, Sandy			Tentative Location: Sta 5+2.5, 75ft RT.
		SS	Tan - Rusty, soft			
	10		LS boulder 12.6			
	20		- Tool drop 12.7-29.5			
	29.2		LS			dry hole
	30.5		Gray, Bd Bottom of Hole 30.5			

DRILLING LOG		DIVISION	INSTALLATION		SHEET / OF 1 SHEETS	
1. PROJECT		ORD	ORLCD			
2. LOCATION (Coordinates or Station)		75-C-0050	10. SIZE AND TYPE OF BIT		3"	
3. DRILLING AGENCY		BL 12+68-53' LT.	11. DATUM FOR ELEVATION SHOWN (TBM or BSL)		115L	
4. HOLE NO. (As shown on drawing title and life marked)		AT-23	12. MANUFACTURER'S DESIGNATION OF DRILL		JBY AIR TRAC	
5. NAME OF DRILLER			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	
6. DIRECTION OF HOLE			14. TOTAL NUMBER CORE BOXES		UNDISTURBED	
7. THICKNESS OF OVERBURDEN			15. ELEVATION GROUND WATER			
8. DEPTH DRILLED INTO ROCK			16. DATE HOLE		STARTED 8/3/77 COMPLETED 8/3/77	
9. TOTAL DEPTH OF HOLE			17. ELEVATION TOP OF HOLE		560.0	
			18. TOTAL CORE RECOVERY FOR BORING		%	
			19. SIGNATURE OF INSPECTOR		A. Chaitman	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	3.0		OUB			
			Sandstone h. wd. rd-br			
542.0	13.0		Limestone h. dry			
	19.0		Limestone h. / some wd br. seams.			
28'±	36.7		cr. clay			Last return of drilling at 36.7
	39.7		Limestone h.			
514.0	46.8		SCALE			

DRILLING LOG		DIVISION	INSTALLATION		SHEET	
1. PROJECT 2. LOCATION (Coordinates or Station) 3. DRILLING AGENCY 4. HOLE NO. (As shown on drawing title and file number) 5. NAME OF DRILLER 6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT. 7. THICKNESS OF OVERBURDEN 8. DEPTH DRILLED INTO ROCK 9. TOTAL DEPTH OF HOLE		ORD	ORLCD		OF SHEETS	
		10. SIZE AND TYPE OF BIT				
		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)				
		12. MANUFACTURER'S DESIGNATION OF DRILL				
		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN				
		14. TOTAL NUMBER CORE BOXES				
		15. ELEVATION GROUND WATER				
		16. DATE HOLE				
		17. ELEVATION TOP OF HOLE				
		18. TOTAL CORE RECOVERY FOR BORING				
		19. SIGNATURE OF INSPECTOR				
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
552.3	2.0		OUB			
			Sandstone med to h. med.			
543.8	2.5		Limestone h. dry			
115'						
532.3	10'					

<b>DRILLING LOG</b>		DIVISION	INSTALLATION	SHEET / OF 1 SHEETS
1. PROJECT		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number)		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION a	DEPTH D.O. b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		SS	Brn. sandy Tan - Rist brn, soft			Tentative Location: Sta 6+92, Tree line
	10		Tool drop 11.5-23.6			
532.1	20	LS	Grey, Hd			
	30		Tool drop 32.1-33			
16.7±	40		crack, Tools binding w/ small Tool drop, 37.5-38.0			
515.4	45	SH	Greenish grey, med hcl			wet hole
511.2	50		bottom of Hole 44.5			

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
1. PROJECT		ORD		ORLCD		OF SHEETS	
2. LOCATION (Coordinates or Station)		RL 12174 - 45' RT.		10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)		AT-26		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK				8/3/77		8/3/77	
9. TOTAL DEPTH OF HOLE				17. ELEVATION TOP OF HOLE		544.2	
				18. TOTAL CORE RECOVERY FOR BORING		2	
				19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
544.2	0.0						
	13.0		OVB				
			fine grained sh. wd.				
521.2	23.0		Limestone h.			Encounter water @ 42' ± 25.	
3 1/2							
518.2	26.0						

DRILLING LOG		DIVISION	INSTALLATION		SHEET	
1. PROJECT		ORD	Patoka Lake		OF 1 SHEETS	
2. LOCATION (Coordinate or Station)			10. SIZE AND TYPE OF BIT		3 in. Auger	
3. DRILLING AGENCY			11. DAYUM FOR ELEVATION SHOWN (FBN or MSL)		MSL	
4. HOLE NO. (As shown on drawing title and file number)		AT-27	12. MANUFACTURER'S DESIGNATION OF DRILL		JAY, Air-Trac	
5. NAME OF DRILLER		Scanner	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED
6. DIRECTION OF HOLE			14. TOTAL NUMBER CORE BOXES		-	
<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DES. FROM VERT.	15. ELEVATION GROUND WATER		-	
7. THICKNESS OF OVERBURDEN		3 ±	16. DATE HOLE		STARTED	COMPLETED
8. DEPTH DRILLED INTO ROCK		29	2/3/77		2/3/77	
9. TOTAL DEPTH OF HOLE		32	17. ELEVATION TOP OF HOLE		551.6	
			18. TOTAL CORE RECOVERY FOR BORING		-	
			19. SIGNATURE OF INSPECTOR		J. J. J. J.	
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		OB	Brn, Sandy			Tentative Location: Sta 6+22, 50 ft. down Hill from Tree Line
		SS	Tan - Rust Brn, Soft			
			Tool drop 12-23			
528.6				23.0		
		LS	Grey, Hd			
9 ±			Tool drop 26.7-30.1			
519.6						
			Bottom of Hole 32.0			

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
1. PROJECT		ORD		ORLCD		OF SHEETS	
2. LOCATION (Coordinate or Station)				10. SIZE AND TYPE OF BIT			
3. DRILLING AGENCY				11. DAYUM FOR ELEVATION BROWN (TBN - MSL)		MSL	
4. HOLE NO. (As shown on drawing title and file number)				12. MANUFACTURER'S DESIGNATION OF DRILL		Joy Air Trac	
5. NAME OF DRILLER				13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		DISTURBED	
6. DIRECTION OF HOLE				14. TOTAL NUMBER CORE BOXES		UNDISTURBED	
<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERT.		15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED 8/31/77 COMPLETED 8/31/77	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE		548.2	
9. TOTAL DEPTH OF HOLE		34.5		18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR		F. C. Christman	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
548.2	0						
	4.2		2.3				
			Transition to 1.0				
523.2	25.0		Transition to 1.0				
4.5							
513.7	34.5						

DRILLING LOG		DIVISION	INSTALLATION	Hole No. <i>111-29</i>	SHEET <i>1</i> OF <i>1</i> SHEETS
1. PROJECT <i>Patoka Lake</i>			10. SIZE AND TYPE OF BIT <i>1 1/2" HSS</i>		
2. LOCATION (Coordinates or Station) <i>Sta 6492, 75 ft down hill from tree line</i>			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) <i>MSL</i>		
3. DRILLING AGENCY <i>Illinois Dept. of Conservation</i>			12. MANUFACTURER'S DESIGNATION OF DRILL <i>901 Air-Tec</i>		
4. HOLE NO. (As shown on drawing title and file number) <i>AT-29</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED <i>—</i> UNDISTURBED <i>—</i>		
5. NAME OF DRILLER <i>Schneider</i>			14. TOTAL NUMBER CORE BOXES <i>—</i>		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED <i>—</i> DEG. FROM VERT.			15. ELEVATION GROUND WATER <i>—</i>		
7. THICKNESS OF OVERBURDEN <i>3</i>			16. DATE HOLE STARTED <i>2/13/77</i> COMPLETED <i>2/13/77</i>		
8. DEPTH DRILLED INTO ROCK <i>22</i>			17. ELEVATION TOP OF HOLE <i>549.5</i>		
9. TOTAL DEPTH OF HOLE <i>22</i>			18. TOTAL CORE RECOVERY FOR BORING <i>—</i>		
			19. SIGNATURE OF INSPECTOR <i>[Signature]</i>		

ELEVATION <i>a</i>	DEPTH <i>b</i>	LEGEND <i>c</i>	CLASSIFICATION OF MATERIALS (Description) <i>d</i>	% CORE RECOVERY <i>e</i>	BOX OR SAMPLE NO. <i>f</i>	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) <i>g</i>
		<i>SB</i>	<i>brn, sandy</i>			<i>Tentative Location: Sta 6492, 75 ft down hill from tree line</i>
		<i>SS</i>	<i>Tan - Rust brn, soft</i>			
	<i>10</i>					
	<i>20</i>					
<i>522.4</i>				<i>27.1</i>		
<i>7.2' ±</i>		<i>LS</i>	<i>Grey, Hd.</i>			<i>dry hole</i>
<i>515.2</i>		<i>SH</i>	<i>Greenish-grey, med. Hd.</i>	<i>34.3</i>		
<i>514.5</i>			<i>bottom of hole 350.2</i>			
	<i>40</i>					



DRILLING LOG		DIVISION		INSTALLATION		SHEET	
1. PROJECT		CRD		OPLCD		OF 1 SHEETS	
2. LOCATION (Coordinates or Station)		BL 14+17 - 49.7' LT.		10. SIZE AND TYPE OF BIT		11. DATE FOR ELEVATION SHOWN (YMM or HSA)	
3. DRILLING AGENCY		AT-30		12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)		AT-30		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE		<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		16. DATE HOLE		STARTED 8/3/77 COMPLETED 8/3/77	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE		552.6	
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING		%	
9. TOTAL DEPTH OF HOLE		552.6		19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
552.6	0						
530.1	22.5		60B				
27.9			Limestone h. dry				
125.2			Cavity			Lost return of circulating fluid.	
23.5			Limestone h.				
517.6	335						

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
1. PROJECT		2. LOCATION (Coordinates or Station)		10. SIZE AND TYPE OF BIT		11. DAYUM FOR ELEVATION SHOWN (YSM or MSL)	
3. DRILLING AGENCY		4. HOLE NO. (As shown on drawing title and file number)		12. MANUFACTURER'S DESIGNATION OF DRILL		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER		6. DIRECTION OF HOLE		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK		16. DATE HOLE		17. ELEVATION TOP OF HOLE	
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR		20. SIGNATURE OF DRILLER	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
		08	Bgn, Sandy			Tentative location: 50 ft down hole from AT-30	
		55	Tan - Dist bgn.				
	10		brn clay, 12.0 - 20.5				
528.5	20		20.5			Dry Hole	
526.5	2 1/2	LS	Grey, H.L.				
			Bottom of Hole 225				
	30						

DRILLING LOG		DIVISION	INSTALLATION		SHEET 1 OF 2 SHEETS	
1. PROJECT Pataha Lake			10. SIZE AND TYPE OF BIT 1 1/2" - 1 1/2" - 1 1/2"		11. DAYUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
2. LOCATION (Coordinates or Station) Sta 7+0.5			12. MANUFACTURER'S DESIGNATION OF DRILL 1 1/2" - 1 1/2" - 1 1/2"			
3. DRILLING AGENCY H. H. H. H. H. H.			13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN			
4. HOLE NO. (As shown on drawing title and file number) AT-32			14. TOTAL NUMBER CORE BOXES			
5. NAME OF DRILLER Wetmore, H. H.			15. ELEVATION GROUND WATER			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DES. FROM VERT.			16. DATE HOLE STARTED 2/14/77 COMPLETED 2/14/77			
7. THICKNESS OF OVERBURDEN 2			17. ELEVATION TOP OF HOLE 549.9			
8. DEPTH DRILLED INTO ROCK 43.5			18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE 45.5			19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVER- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		SS	Ben - Rusty, soft			Top of 1st Location. Sta 7+0.5, E
549.0		LS	small c. v. ty, lost a. h. 0.52 15.9 Grey, Hcl			
27.6			soft shaley seam 24.5-25 soft seam 25.5-27.7 soft (w) LS, 27.7-30.1			
516.4		SH	Greenish grey, med Hcl			
514.4			Bottom of Hole 45.5			

DRILLING LOG		DIVISION <u>CRD</u>		INSTALLATION <u>Patuta Lake</u>		SHEET <u>1</u> OF <u>1</u> SHEETS	
1. PROJECT <u>Patuta Lake</u>				10. SIZE AND TYPE OF BIT <u>3 1/2" x 15' x 15' 1/2"</u>			
2. LOCATION (Coordinates or Station) <u>Sta 17+00, 17+00 LT. (See note 4)</u>				11. DATUM FOR ELEVATION SHOWN (TBM or MSL) <u>MSL</u>			
3. DRILLING AGENCY <u>Highway Dept. CO</u>				12. MANUFACTURER'S DESIGNATION OF DRILL <u>Qty Air-Track</u>			
4. HOLE NO. (As shown on drawing title and file number) <u>A7-33</u>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER <u>Wetzel, Holz</u>				14. TOTAL NUMBER CORE BOXES		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		15. ELEVATION GROUND WATER	
7. THICKNESS OF OVERBURDEN <u>2</u>				16. DATE HOLE		16. DATE HOLE	
8. DEPTH DRILLED INTO ROCK <u>42.3</u>				17. ELEVATION TOP OF HOLE <u>557.9</u>		17. ELEVATION TOP OF HOLE	
9. TOTAL DEPTH OF HOLE <u>42.3</u>				18. TOTAL CORE RECOVERY FOR BORING		18. TOTAL CORE RECOVERY FOR BORING	
				19. SIGNATURE OF INSPECTOR <u>J. J. J. J.</u>		19. SIGNATURE OF INSPECTOR	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		OB	dm, sandy			Tentative Location: Sta 8+0, E
		SS	tan - Red brn, soft			
536.6	20			21.3		
		LS	Gre, Hd			
	30		V soft + sandy, R.T.Tle resistance to drilling 21.5-30.2			
18.8			Top solid LS @ 30.2			
517.8	40			40.1		
515.6		SH				dry hole
			bottom of Hole 42.3			
	50					

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
1. PROJECT		C.R.D.		Patoka Lake		OF 1 SHEETS	
2. LOCATION (Coordinates or Station)		Sta 17+00, 142.5' ST. (see sketch)		10. SIZE AND TYPE OF BIT		3" diam. 1/2" 110-100	
3. DRILLING AGENCY		Holloway Const. Co.		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		MSL	
4. HOLE NO. (As shown on drawing title and file number)		AT-34		12. MANUFACTURER'S DESIGNATION OF DRILL		Y-21 110-100	
5. NAME OF DRILLER		Vetter, Holz		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
6. DIRECTION OF HOLE		<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		14. TOTAL NUMBER CORE BOXES		-	
7. THICKNESS OF OVERBURDEN		2		15. ELEVATION GROUND WATER		-	
8. DEPTH DRILLED INTO ROCK		45.3		16. DATE HOLE		STARTED COMPLETED	
9. TOTAL DEPTH OF HOLE		45.3		17. ELEVATION TOP OF HOLE		552.9	
				18. TOTAL CORE RECOVERY FOR BORING		3	
				19. SIGNATURE OF INSPECTOR		J. J. J. J.	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
		CB	Brn. Sandy			Tentative Location: Sta A+25.2	
		SS	Tan - Rust brn, soft				
	10						
	20		Very soft sandstone but definitely rock				
	30					wet below 25 ft	
	40						
517.3		LS	Gray, Md	41.6			
516.9				42.0			
513.6	3	SH	Greenish gray, mod Hd				
	40		Bottom of Hole 45.3				

DRILLING LOG		DIVISION		INSTALLATION		Hole No. <i>AT-25</i>		SHEET OF SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT <i>HSL</i>					
2. LOCATION (Coordinates or Station) <i>Sta 42.2 (see sketch)</i>				11. DAYUM FOR ELEVATION SHOWN (TBM or HSL) <i>HSL</i>					
3. DRILLING AGENCY <i>Ill. State Geol. Surv.</i>				12. MANUFACTURER'S DESIGNATION OF DRILL <i>Joy</i>					
4. HOLE NO. (As shown on drawing title and file number) <i>AT-25</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED		UNDISTURBED	
5. NAME OF DRILLER <i>W. H. H. H. H.</i>				14. TOTAL NUMBER CORE BOXES		--			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED      DEG. FROM VERT.				15. ELEVATION GROUND WATER		--			
7. THICKNESS OF OVERBURDEN <i>2</i>				16. DATE HOLE		STARTED <i>3/4/77</i>		COMPLETED <i>3/14/77</i>	
8. DEPTH DRILLED INTO ROCK <i>42.2</i>				17. ELEVATION TOP OF HOLE <i>519.9</i>					
9. TOTAL DEPTH OF HOLE <i>42.2</i>				18. TOTAL CORE RECOVERY FOR BORING		--			
				19. SIGNATURE OF INSPECTOR <i>W. H. H. H.</i>					
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g			
		CR	CR - Clay			Tentative Location, Sta 42.2, 20 ft. N.			
		SS	Tan - R. s. s. v. soft						
	10								
	20								
	30								
519.9	29.2	LS	Gr. s. s. H. d.	37.2					
517.0	40	SH	Green s. s. clay, med. H. d.	40.1		dry Hole			
514.9			Bottom of Hole 42.2						
	50								

DRILLING LOG		DIVISION		INSTALLATION		SHEET 1 OF 1 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES	
5. NAME OF DRILLER				15. ELEVATION GROUND WATER		16. DATE HOLE	
6. DIRECTION OF HOLE				17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
7. THICKNESS OF OVERBURDEN				19. SIGNATURE OF INSPECTOR			
8. DEPTH DRILLED INTO ROCK							
9. TOTAL DEPTH OF HOLE							
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
542.7		SS	Thin, HT	33			
		LS	Grey, Hcl				
	10						
	20		Thin soft seam, brn, R2-H41				
			Tool drop 24.9-26.9				
516.3	30	SH	Greenish grey, mod Hcl	297			
514.0			Bottom of Hole 32.0 ±				
	40						

DRILLING LOG		DIVISION		INSTALLATION		SHEET / OF 1 SHEETS	
1. PROJECT Parake Lake		10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (TBN or MSL)		12. MANUFACTURER'S DESIGNATION OF DRILL	
2. LOCATION (Coordinates or Station) Spillway 5459.25 ft RT		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
3. DRILLING AGENCY Hill County Co.		16. DATE HOLE		17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
4. HOLE NO. (As shown on drawing title and file number) AT-37		17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR	
5. NAME OF DRILLER Hill County Co.		19. SIGNATURE OF INSPECTOR		20. SIGNATURE OF INSPECTOR		21. SIGNATURE OF INSPECTOR	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		21. SIGNATURE OF INSPECTOR		22. SIGNATURE OF INSPECTOR		23. SIGNATURE OF INSPECTOR	
7. THICKNESS OF OVERBURDEN		23. SIGNATURE OF INSPECTOR		24. SIGNATURE OF INSPECTOR		25. SIGNATURE OF INSPECTOR	
8. DEPTH DRILLED INTO ROCK		25. SIGNATURE OF INSPECTOR		26. SIGNATURE OF INSPECTOR		27. SIGNATURE OF INSPECTOR	
9. TOTAL DEPTH OF HOLE		27. SIGNATURE OF INSPECTOR		28. SIGNATURE OF INSPECTOR		29. SIGNATURE OF INSPECTOR	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
545.1	0.0	SS	fine sand 1.5				
	1.5	LS	limestone 3.7-4.4				
	10		occ. (w) ben zones				
27.0	20						
	27.0		mud seam 22.9-27.2				
518.1	30	SH	green sh Grey, med Hd.			wet hole	
514.6	40		bottom of Hole 32 ft				



DRILLING LOG		DIVISION	INSTALLATION		SHEET 1 OF 1 SHEETS	
1. PROJECT			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and site number)			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES	
5. NAME OF DRILLER			15. ELEVATION GROUND WATER		16. DATE HOLE	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
7. THICKNESS OF OVERBURDEN			19. SIGNATURE OF INSPECTOR		19. SIGNATURE OF INSPECTOR	
8. DEPTH DRILLED INTO ROCK						
9. TOTAL DEPTH OF HOLE						
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
		CL & SC	Reddish brown clay to sand,			
	10					
	20					No SS or LS
512.6			27.4			
517.5	30	SH	Greenish Grey			
			Bottom of Hole 20.5			

DRILLING LOG		INSTALLATION		SHEET		
PROJECT		DATE		OF 1 SHEETS		
1. PROJECT		10. SIZE AND TYPE OF BIT		11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)		
2. LOCATION (Coordinates or Station)		12. MANUFACTURER'S DESIGNATION OF DRILL		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
3. DRILLING AGENCY		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		
4. HOLE NO. (As shown on drawing title and file number)		16. DATE HOLE		17. ELEVATION TOP OF HOLE		
5. NAME OF DRILLER		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR		
6. DIRECTION OF HOLE		19. SIGNATURE OF INSPECTOR				
7. THICKNESS OF OVERBURDEN						
8. DEPTH DRILLED INTO ROCK						
9. TOTAL DEPTH OF HOLE						
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
541.8	0	OB	Sand & clay			
	10	SS	Tool drop 40-8.5 soft SS + m.d. below 8.5			
530.6	20	LS	Grey, hshl. (w) + soft to 25.4 w/ binding rods H.d. below 25.8			
518.2	30	SH	Greenish Grey, M.H.L.			
			Bottom of Hole 28.0 ± Elev 517.8			



DRILLING LOG				SHEET 1 OF 1 SHEETS		
1. PROJECT Patoka Lake				10. SIZE AND TYPE OF BIT 1 1/2" - 2" - 3" - 4" - 5" - 6" - 8" - 10" - 12" - 14" - 16" - 18" - 20" - 22" - 24" - 26" - 28" - 30" - 32" - 34" - 36" - 38" - 40" - 42" - 44" - 46" - 48" - 50" - 52" - 54" - 56" - 58" - 60" - 62" - 64" - 66" - 68" - 70" - 72" - 74" - 76" - 78" - 80" - 82" - 84" - 86" - 88" - 90" - 92" - 94" - 96" - 98" - 100"		
2. LOCATION (Coordinates or Station) 6400; 5077 RT				11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3. DRILLING AGENCY Hillman Co. Inc.				12. MANUFACTURER'S DESIGNATION OF DRILL 2" - 4" - 6" - 8" - 10" - 12" - 14" - 16" - 18" - 20" - 22" - 24" - 26" - 28" - 30" - 32" - 34" - 36" - 38" - 40" - 42" - 44" - 46" - 48" - 50" - 52" - 54" - 56" - 58" - 60" - 62" - 64" - 66" - 68" - 70" - 72" - 74" - 76" - 78" - 80" - 82" - 84" - 86" - 88" - 90" - 92" - 94" - 96" - 98" - 100"		
4. HOLE NO. (As shown on drawing title and file number) A7-41				13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED UNDISTURBED		
5. NAME OF DRILLER Hillman Co. Inc.				14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN 0				16. DATE HOLE STARTED COMPLETED		
8. DEPTH DRILLED INTO ROCK 31.0				17. ELEVATION TOP OF HOLE 547.8		
9. TOTAL DEPTH OF HOLE 31.0				18. TOTAL CORE RECOVERY FOR BORING		
				19. SIGNATURE OF INSPECTOR		
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
539.9	10	SS	Tan, soft			
	20	LS	Grey, Hd			
	20		Soft mud & clay, seam 13.7-20.4			
519.4	30	SH	Greenish Grey, mud Hd			
516.8			Bottom of hole 31.0			wet hole

DRILLING LOG		INSTALLATION		SHEET		
PROJECT		DATE		OF 1 SHEETS		
1. PROJECT Patoka Lake		10. SIZE AND TYPE OF BIT 1 1/2"		11. DATUM FOR ELEVATION SHOWN (TBM or BBL)		
2. LOCATION (Coordinates or Station) 6+25, 54 FT RT		12. MANUFACTURER'S DESIGNATION OF DRILL G. H. H. H.		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
3. DRILLING AGENCY H. H. H. H.		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		
4. HOLE NO. (As shown on drawing title and site marked) A7-42		16. DATE HOLE STARTED 2/5/77 COMPLETED 2/5/77		17. ELEVATION TOP OF HOLE 546.9		
5. NAME OF DRILLER W. H. H. H.		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		19. SIGNATURE OF INSPECTOR				
7. THICKNESS OF OVERBURDEN						
8. DEPTH DRILLED INTO ROCK 20.0						
9. TOTAL DEPTH OF HOLE 30.0						
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		SS	W/clay, sand, Tan-Rust brn, soft			
	10					
	18.9					
528.0	20	LS	Grey, Hd			
9.4						
518.6	24.3					
516.9	30	SN	Greenish Grey			
			Bottom of Hole 30.0			

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
		CPD		Patoka, Ind. 1966		OF 1 SHEETS	
1. PROJECT Patoka Lake				10. SIZE AND TYPE OF BIT 1 1/2" Dia. Double Flute			
2. LOCATION (Coordinates or Station) Sta. 6450; 535 ft RT				11. DAYUM FOR ELEVATION SHOWN (TBM or MSL) MSL			
3. DRILLING AGENCY H. E. ... Co.				12. MANUFACTURER'S DESIGNATION OF DRILL Joy, 4" - 7" - 10"			
4. HOLE NO. (As shown on drawing title and site number) AT-43				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER W. ...				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN 0				16. DATE HOLE STARTED 2/5/77		COMPLETED 2/5/77	
8. DEPTH DRILLED INTO ROCK 29.0				17. ELEVATION TOP OF HOLE 546.6			
9. TOTAL DEPTH OF HOLE 29.0				18. TOTAL CORE RECOVERY FOR BORING -			
				19. SIGNATURE OF INSPECTOR J. ...			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVER- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
543.4		SS	Tan, soft	3.2			
543.0		SH	Grey, soft	3.6			
	10	LS	Grey, Hd				
			Thin grn (w) spec 9.5-9.7				
			mud seam 12.4-17.1				
24.6	20		(w) mod Hd LS				
			soft mud seam 20.0-22.3				
			mod Hd 25.3-29.1	29.1			
518.5	30	SH	Greenish grey, mod Hd			wet hole	
517.6			Bottom of Hole 29.0'				

<b>DRILLING LOG</b>		DIVISION 020	INSTALLATION Patoka Lake	SHEET OF 1 SHEETS
1. PROJECT Patoka Lake			10. SIZE AND TYPE OF BIT 1 1/2" DIA. DOUBLE FLUTE	
2. LOCATION (Coordinates or Station) 6750, 100 FT RT			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
3. DRILLING AGENCY Holladay Const Co.			12. MANUFACTURER'S DESIGNATION OF DRILL J. H. Smith	
4. HOLE NO. (As shown on drawing title and file number) A7-44			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED UNDISTURBED	
5. NAME OF DRILLER Wetmore hole			14. TOTAL NUMBER CORE BOXES -	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER -	
7. THICKNESS OF OVERBURDEN 5.8'			16. DATE HOLE STARTED 8/15/77 COMPLETED 8/15/77	
8. DEPTH DRILLED INTO ROCK 27.0			17. ELEVATION TOP OF HOLE 599.7	
9. TOTAL DEPTH OF HOLE 27.0			18. TOTAL CORE RECOVERY FOR BORING -	
			19. SIGNATURE OF INSPECTOR J. H. Smith	

ELEVATION a	DEPTH D.F. b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		Fill	SS, sand & organic			
543.9		SH	very soft	5.0		
542.7		LS	Grey, Hd	6.0		
	10		cm (w)			
			ben (w) 13-13.5			
			ben (w) 14-14.5			
			ben (w) 15-15.2			
	20		ben mud seam 17.5-18.0'			
			mud seam 18.7-27.2			
522.5				27.2		
	30	SH	Greenish grey soft to 29, mod. Hd below 29			
516.9			bottom of Hole 32.8			
	40					

DRILLING LOG		DIVISION	INSTALLATION		SHEET	
1. PROJECT			10. SIZE AND TYPE OF BIT		OF SHEETS	
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
		CL SH	Dr. clay, clay, sand & organic			
			7.0			
		CL SC	Red Brn, clay, & sandy clay			
			28.4			
522.0	10	LS	Gr. & H. cl			dry hole
519.1		SH	Gr. & H. cl, med. H. cl			
517.4			Bottom of Hole 33.0 ±			



DRILLING LOG		DIVISION	INSTALLATION	SHEET		
		OF 1	SHEETS			
1. PROJECT <i>Potomac Lake</i>			10. SIZE AND TYPE OF BIT <i>M5L</i>			
2. LOCATION (Coordinates or Station) <i>475.0; 15447. PT.</i>			11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY <i>WPTA/12/12</i>			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>4-46</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN			
5. NAME OF DRILLER <i>WPTA/12/12</i>			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED <i>DEG. FROM VERT.</i>			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN <i>27.5</i>			16. DATE HOLE <i>2/12/77</i>			
8. DEPTH DRILLED INTO ROCK <i>10.0</i>			17. ELEVATION TOP OF HOLE <i>554.4</i>			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR <i>1/12/77</i>			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	0	SM CL	lt grey, sand & clay w/ organic			
	10	CL SC	Red brown clay w/sand			
	20					
526.9	27.5	SS	Tan - Reddish brn, soft			
519.1	30.0	SH	Dark grey mud			
517.9	36.5		Bottom of hole 36.5'			

<b>DRILLING LOG</b>		INSTALLATION		SHEET 1 OF 1 SHEETS	
1. PROJECT		10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
2. LOCATION (Coordinates or Station)		12. MANUFACTURER'S DESIGNATION OF DRILL		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
3. DRILLING AGENCY		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
4. HOLE NO. (As shown on drawing title and file number)		16. DATE HOLE		17. ELEVATION TOP OF HOLE	
5. NAME OF DRILLER		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR	
6. DIRECTION OF HOLE		19. SIGNATURE OF INSPECTOR			
7. THICKNESS OF OVERBURDEN					
8. DEPTH DRILLED INTO ROCK					
9. TOTAL DEPTH OF HOLE					

ELEVATION e	DEPTH D, ft	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
547.5		FILL	SS + clay			
		SH	2.6			
543.3			Tool drop in mud seam 2.8-6.8			
		LS	G-c, Hd			
	10		possible LS contact @ 2.8			
			brn(w) LS, 2.5-9			
			brn(w) LS, 10.5-10.6			
			Thin clay seam 13.5-13.8			
25.25						
	20		Tool drop in mud seam 18.5- 20.5			
			brn(w) LS, 20.5-21			
	30		possible SH contact, on soft seam + 29.1 ft			
518.1			Hd LS			
		SH	greenish grey, mod Hd			
512.1						
	40		Bottom of Hole 38.0			

DRILLING LOG		DIVISION	INSTALLATION		SHEET 1 OF 1 SHEETS	
1. PROJECT		2. LOCATION (Coordinates or Station)		10. SIZE AND TYPE OF BIT		11. DAY ON FOR ELEVATION SHOWN (TBM or MSL)
3. DRILLING AGENCY		4. HOLE NO. (As shown on drawing title and file number)		12. MANUFACTURER'S DESIGNATION OF DRILL		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN
5. NAME OF DRILLER		6. DIRECTION OF HOLE		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER
7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK		16. DATE HOLE		17. ELEVATION TOP OF HOLE
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR		
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
		CL 101 +SS	fill, sand, clay, +SS, 500'			
		CL +SM	red brn sand & clay			
	10		SS, 9.5-10.6 Hd 10.6-10.8 Red brn sand & clay 10.8-17			
	20		Tool drop			
	30		soft clay			
518.9		SH	Ho 6s TOR 33.3			Dry hole
515.7±			Greenish grey, mod Hd			
	110		Bottom of Hole 36.5			

DRILLING LOG		DIVISION	INSTALLATION		SHEET 1 OF 1 SHEETS	
1. PROJECT Paton Lake			10. SIZE AND TYPE OF BIT M.S.L.			
2. LOCATION (Coordinates or Station) S. 7455: 202 ft RT.			11. DAYUM FOR ELEVATION SHOWN (TBM or MSL) M.S.L.			
3. DRILLING AGENCY C.D.			12. MANUFACTURER'S DESIGNATION OF DRILL P. 100 - 1000			
4. HOLE NO. (As shown on drawing title and file number) AT-49			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER W. C. H. 12			14. TOTAL NUMBER CORE BOXES		-	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER		-	
7. THICKNESS OF OVERBURDEN 0			16. DATE HOLE		STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK 33.5			17. ELEVATION TOP OF HOLE 52.7		-	
9. TOTAL DEPTH OF HOLE 33.5			18. TOTAL CORE RECOVERY FOR BORING		-	
			19. SIGNATURE OF INSPECTOR J. H. H. 12			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
543.4	10	SS	Tan & R-st. brn, soft			
			Tool drop 6.5-7.3			
		LS	Grey, Hd			
			ben (w) LS, 12.0-12.2			
25.2	20		Tan, Hd, (w) LS 14.0-19.6			
			Small Tool drop 10.0-29.2			
518.2	30		32.5			Dry hole
517.2			6.77m of Hole 33.5			

DRILLING LOG		DIVISION	INSTALLATION		SHEET	
1. PROJECT		RD	D-253, Patoka Lake		OF 1 SHEETS	
2. LOCATION (Coordinates or Station)		7+00; 320.5 ft RT		10. SIZE AND TYPE OF BIT		3/4" Dia. Rock Bit
3. DRILLING AGENCY		Illinois State Survey		11. DAYUM FOR ELEVATION SHOWN (TBM or BSL)		MSL
4. HOLE NO. (As shown on drawing title and file number)		AT-50		12. MANUFACTURER'S DESIGNATION OF DRILL		Y-200-100
5. NAME OF DRILLER		WPTZ: 0012		13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DES. FROM VERT.		14. TOTAL NUMBER CORE BOXES		-
7. THICKNESS OF OVERBURDEN		2.4		15. ELEVATION GROUND WATER		-
8. DEPTH DRILLED INTO ROCK		0.9		16. DATE HOLE		STARTED 2/15/77 COMPLETED 2/15/77
9. TOTAL DEPTH OF HOLE		34.3		17. ELEVATION TOP OF HOLE		552.9
				18. TOTAL CORE RECOVERY FOR BORING		-
				19. SIGNATURE OF INSPECTOR		WPTZ: 0012
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		CL-5 SS	gray sand, clay, & SS			
	10	CL-5C	red brn clay & sand			
	20		SS 15-15.5 clay & sand 15.5-20, red brn			
	30		SS 20-20.5 soft, red brn. clay & sand 20.5-33.4			
519.5	34.3	SH	TOR Screen 34.3 ft, mod Hd Bottom of Hole 34.3	33.4		Dry hole
518.6	40					



DRILLING LOG		DIVISION	INSTALLATION		Hole No. 711-52		SHEET 1 OF 1 SHEETS	
1. PROJECT Patoka Lake			10. SIZE AND TYPE OF BIT Diamond			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
2. LOCATION (Coordinates or Station) S. 1/4 Sec. 27.2; 256 FT RT.			12. MANUFACTURER'S DESIGNATION OF DRILL Joy H-1 Trac			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED - UNDISTURBED -		
3. DRILLING AGENCY Holston Const Co.			14. TOTAL NUMBER CORE BOXES -			15. ELEVATION GROUND WATER -		
4. HOLE NO. (As shown on drawing title and file number) AT-52			16. DATE HOLE STARTED 8/5/77 COMPLETED 8/5/77			17. ELEVATION TOP OF HOLE 556.6		
5. NAME OF DRILLER WETTER HOLZ			18. TOTAL CORE RECOVERY FOR BORING -			19. SIGNATURE OF INSPECTOR J. S. S. S.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			19. SIGNATURE OF INSPECTOR					
7. THICKNESS OF OVERBURDEN 5.6								
8. DEPTH DRILLED INTO ROCK 39.4								
9. TOTAL DEPTH OF HOLE 39.0								
ELEVATION a	DEPTH O.D. b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g		
548.1		SS + sand till	Sand + SS fill					
546.2	10	SH	Hd LS boulder	8.5				
		LS	grey, soft	10.4				
			Grey, Hd					
			Tan (w) LS, 11.9-13.4					
521.8		SH	Greenish grey, mod Hd	34.4		Dry hole		
517.6	10		bottom of hole 39.0					

DRILLING LOG		DIVISION	INSTALLATION		SHEET 1 OF 1 SHEETS	
1. PROJECT Pata Lake			10. SIZE AND TYPE OF BIT 1 1/2"		11. DATUM FOR ELEVATION SHOWN (TBM or ASL) ASL	
2. LOCATION (Coordinates or Station) S. 11.2 17. 49.52; 250 ft. RT.			12. MANUFACTURER'S DESIGNATION OF DRILL 20Y H-1000			
3. DRILLING AGENCY Hickory Creek, CO.			13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED: 0 UNDISTURBED: 0			
4. HOLE NO. (As shown on drawing title and file number) A7-53			14. TOTAL NUMBER CORE BOXES 0			
5. NAME OF DRILLER Wortachholz			15. ELEVATION GROUND WATER -			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEG. FROM VERT.			16. DATE HOLE STARTED: 8/15/77 COMPLETED: 8/15/77			
7. THICKNESS OF OVERBURDEN 18.43			17. ELEVATION TOP OF HOLE 552.2			
8. DEPTH DRILLED INTO ROCK 12.5			18. TOTAL CORE RECOVERY FOR BORING %			
9. TOTAL DEPTH OF HOLE 37.5			19. SIGNATURE OF INSPECTOR [Signature]			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	0	SS + sand fill	Sandstone and sand fill			
	10					
540.2		CL-SC	15			
539.3	20	LS	18.02 18.0			
			Green, Hd			
	30		Soft zone just below top of LS			
523.2			35.0			
520.7	40	SH	Greenish grey, med Hd			
			bottom of Hole 37.5			
						Dry hole





DRILLING LOG		DIVISION	INSTALLATION	Hole No. <i>A7-55</i>	
		<i>C&amp;D</i>	<i>Patoka Lake</i>	SHEET 1 OF 1 SHEETS	
1. PROJECT <i>Patoka Lake</i>			10. SIZE AND TYPE OF BIT <i>1 1/2" HSS</i>		
2. LOCATION (Coordinates or Station) <i>S-11.000, T-24.750, 260 ft RT.</i>			11. DAY ON FOR ELEVATION SHOWN (TBM or MSL) <i>MSL</i>		
3. DRILLING AGENCY <i>Hill County Const. Co.</i>			12. MANUFACTURER'S DESIGNATION OF DRILL <i>Don Air-Tool</i>		
4. HOLE NO. (As shown on drawing title and file number) <i>A7-55</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED <i>—</i> UNDISTURBED <i>—</i>		
5. NAME OF DRILLER <i>Wetter, R-L2</i>			14. TOTAL NUMBER CORE BOXES <i>—</i>		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED <i>—</i> DEG. FROM VERT.			15. ELEVATION GROUND WATER <i>—</i>		
7. THICKNESS OF OVERBURDEN <i>0</i>			16. DATE HOLE STARTED <i>8/5/57</i> COMPLETED <i>8/5/57</i>		
8. DEPTH DRILLED INTO ROCK <i>35.5</i>			17. ELEVATION TOP OF HOLE <i>556.0</i>		
9. TOTAL DEPTH OF HOLE <i>35.5</i>			18. TOTAL CORE RECOVERY FOR BORING <i>—</i>		
19. SIGNATURE OF INSPECTOR <i>J. A. ...</i>					

ELEVATION a	DEPTH D.F. b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		<i>SS</i>	<i>Tan &amp; Grey, soft</i>			
		<i>SH</i>				
<i>546.0</i>	<i>10</i>	<i>SH</i>	<i>grey, soft</i>	<i>10.0</i>		
<i>544.9</i>		<i>LS</i>	<i>Grey, HCl</i>	<i>11.1</i>		
			<i>brn (w) LS 12.3-12.6</i>			
			<i>brn (w) LS, 13.0-13.2</i>			
			<i>brn (w) LS, 14.0-14.3</i>			
			<i>brn (w) LS, 16.7-17.0</i>			
			<i>occ v. thin brn (w)</i>			
			<i>LS seams between 26 &amp; 29 ft</i>			
<i>528.1</i>		<i>SH</i>	<i>greenish grey</i>	<i>34.9</i>		
<i>520.5</i>			<i>bottom of Hole 35.5</i>			
						<i>Dry hole</i>

DRILLING LOG		DIVISION		INSTALLATION		SHEET / OF / SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinate or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES	
5. NAME OF DRILLER				15. ELEVATION GROUND WATER		16. DATE HOLE	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
7. THICKNESS OF OVERBURDEN				19. SIGNATURE OF INSPECTOR			
8. DEPTH DRILLED INTO ROCK							
9. TOTAL DEPTH OF HOLE							
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
563.4		SS	mostly sand				
	10						
546.2	20		Hd 20.9-20.9, possible LS				
	30		Tool drop 20.9-35.7, lost air, probable gr, tools hanging on ragged edges				
531.2	40	LS	Gray, Hd w/ shaley zones				
	50		Tool drop 44.6-46.7			dry hole	
517.3 515.9	60	SH	Greenish gray, mud sh bottom of hole 510±				

DRILLING LOG		DIVISION	INSTALLATION		SHEET	
1. PROJECT		2. LOCATION (Coordinates or Station)		3. DRILLING AGENCY		4. HOLE NO. (As shown on drawing title and file number)
5. NAME OF DRILLER		6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK
9. TOTAL DEPTH OF HOLE		10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (FSM or MSL)		12. MANUFACTURER'S DESIGNATION OF DRILL
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		16. DATE HOLE
17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR		20. REMARKS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS
577.2	0	SS	medium sand			
	10					
	20					
	30					
544.2	34.9	LS	gray, red - 0.3 ft. shaley (w/ ore), LS			
	40					
	50					
518.9	57.9		LS bottom of hole 60.2			
	60					
	70					
	80					
	90					
	100					
	110					
	120					
	130					
	140					
	150					
	160					
	170					
	180					
	190					
	200					
	210					
	220					
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	870					
	880					
	890					
	900					
	910					
	920					
	930					
	940					
	950					
	960					
	970					
	980					
	990					
	1000					

DRILLING LOG		DIVISION		INSTALLATION		SHEET OF 1 SHEETS	
1. PROJECT Patoka Lake				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinate or Station) N 27° 10' 12" W - 151.5 E				11. DAYUM FOR ELEVATION SHOWN (YBM or MSL)			
3. DRILLING AGENCY Illinois State Survey				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) A7-50				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER Raymond L. Hartz				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE STARTED 1/12/77 COMPLETED 7/2/77		17. ELEVATION TOP OF HOLE 572.0	
7. THICKNESS OF OVERBURDEN 3"				18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR	
8. DEPTH DRILLED INTO ROCK 53.2							
9. TOTAL DEPTH OF HOLE 57.0							
ELEVATION 57.0	DEPTH 0.0	LEGEND a	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
		SS	fine to med. sand.				
	10						
	20						
543.8	30	LS	Green, med. occ rust orn (w) seams				
	40						
	50						
517.3	57.0	SH	Tool drop 50.2 - 51.6 GREENISH GRAY, med. hb. Bottom of Hole 57.0 ±			dry hole	

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
1. PROJECT		2. LOCATION (Coordinates or Station)		3. DRILLING AGENCY		4. HOLE NO. (As shown on drawing title and file number)	
5. NAME OF DRILLER		6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF HOLE		10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (TBM or ABL)		12. MANUFACTURER'S DESIGNATION OF DRILL	
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		16. DATE HOLE STARTED _____ COMPLETED _____	
17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
		OB	mostly sand				
		SS	Sandstone, Tan - Rust on top				
	10						
	20						
549.4		SH	Tool drop 23.8 - 25.9 ft 0.2 ft - 0.5 ft				
	30	LS	Green - d. w/ (w) seams Rust on (w) seam				
	40		Rust on (w) seam Rust on and (w) and softer LS below 40 ft.				
	50		Tool drop 44.1 - 46.2, air loss, wet				
510.6		SH	5.1 ft - 5.2 ft, Mud - 0				wet below 45 ft.
	60		Bottom of Hole 56.5 ft				

Hole No. **WF-12A**

DRILLING LOG		DIVISION <b>ORD</b>		INSTALLATION <b>LOUISVILLE DISTRICT</b>		SHEET 1 OF 5 SHEETS	
1. PROJECT <b>POTOKA LAKE</b>				10. SIZE AND TYPE OF BIT <b>MSL</b>			
2. LOCATION (Coordinates or Station) <b>Sta 143+10 &amp; DAM STATION</b>				11. DATUM FOR ELEVATION SHOWN (TBM or MSL) <b>MSL</b>			
3. DRILLING AGENCY <b>Muddy's of Dayton</b>				12. MANUFACTURER'S DESIGNATION OF DRILL <b>C-3111</b>			
4. HOLE NO. (As shown on drawing title and life number) <b>WP-12A</b>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER <b>E. WHEELER</b>				14. TOTAL NUMBER CORE BOXES <b>4</b>		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE <b>7/11/77</b>		COMPLETED <b>7/15/77</b>	
7. THICKNESS OF OVERBURDEN <b>3.0</b>				17. ELEVATION TOP OF HOLE <b>530.05</b>			
8. DEPTH DRILLED INTO ROCK <b>46.5</b>				18. TOTAL CORE RECOVERY FOR BORING <b>87.3</b>			
9. TOTAL DEPTH OF HOLE <b>46.25</b>				19. SIGNATURE OF INSPECTOR <b>[Signature]</b>			
ELEVATION e	DEPTH d	LEGEND c	CLASSIFICATION OF MATERIALS (Description) f	% CORE RECOVERY g	BOX OR SAMPLE NO. h	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) i	
			Rubble			Run #1	
			<b>TOR</b>			Drill L 5.0	
			Hd Limy nodule remolded CL modules soft;			Rec. 3.15	
						Left 0.2	
						Lost 1.65	
		SLS	Greenish gray; Hd, Thin bd; nodules; sandy; Limy; occ. thin ss lam.	47.6			
		SH	badly broken probable core loss.				
		SH	mottled maroon & dk gray; mod soft-mod Hd, compaction slicks; distinct bding; silty;				
			core water washed 4.8 - 6.8'				
				64.9		Run# 2	
						Drill L 6.35	
						Rec. 4.7 =	
						Left 0.2 =	
						Loss n 1.65 =	
						hole caving at Top.	
			core v. badly broken 9.55 - 11.15				

Hole No. *WP-12A*

DRILLING LOG		DIVISION		INSTALLATION		SHEET 2 OF 5 SHEETS	
1. PROJECT <i>PATOKA LAKE</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DAYUM FOR ELEVATION SHOWN (YES or NO)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>WP-12A</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			core v. badly broken				
			0.45 ft core loss				
			core badly broken				
			shaley contact w/ fossil v. shaley irr. open B/p	90.3		Drill 5.0 Rec 4.65 Left 0.15 Lost 0.45	
		LS	LT-Dk grey; shaley; in part foss; xtlm; wd; occ sp. life				
			irr. open horiz. break				
			2 horiz open breaks in shale				
			open Break on shaley seam				
			irr. open B/p on shaley zone				
			shaley zone				
			irr open B/p				
			open B/p's				
			SH. zone 25.5-26.1	26.1			
			irr. HA hackly frac. across core				
			irr. HA break across core	100		Run # 6 Drill 5.0 Rec. 4.9 Left 0.1 Lost 0.0	
			irr break across core				



DRILLING LOG		DIVISION		INSTALLATION		Hole No. <b>WP-12A</b>	
						SHEET <b>3</b> OF <b>5</b> SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>WP-12A</b>				13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES	
5. NAME OF DRILLER				15. ELEVATION GROUND WATER		16. DATE HOLE	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
7. THICKNESS OF OVERBURDEN				19. SIGNATURE OF INSPECTOR			
8. DEPTH DRILLED INTO ROCK							
9. TOTAL DEPTH OF HOLE							
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
		<b>SH</b>	Lam num ss. lam; Gray & Lt gray; mod Hd - mod soft; v. fine ss;				
			Thin ss zone			D.D. 11.35	
						Drill 5.0 Rec. 4.7 Left 0.4 Lost 0.0	
			Lam ss. zone	100			
			LA. B/P				
			ss zone				
			badly broken				
			badly broken	1485			
			badly broken				
			badly broken				
			DK grey, fissile; thin bd, silty; mod soft				
			1.75 ft. core				
			Loss, Dist. 15.85 - 21.0	48.5		Drill 5.0 Rec 3.4 Left 0.25 Lost 1.75	
			V. HA open 8T.				

Hole No. *WP-12A*

DRILLING LOG		DIVISION	INSTALLATION		SHEET <i>4</i> OF <i>5</i> SHEETS
1. PROJECT			10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or BSL)		
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <i>WP-12A</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		STARTED COMPLETED
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING		%
19. SIGNATURE OF INSPECTOR					

ELEVATION <i>a</i>	DEPTH <i>b</i>	LEGEND <i>c</i>	CLASSIFICATION OF MATERIALS (Description) <i>d</i>	% CORE RECOVERY <i>e</i>	BOX OR SAMPLE NO. <i>f</i>	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) <i>g</i>
			<i>SL; irr. open B/p</i>		<i>2</i>	
<i>31</i>					<i>31.15</i>	
<i>32</i>						
			<i>SL core spin</i> <i>HA open hackly frac across core</i> <i>irr. vert. closed frac</i> <i>SL irr break across core</i> <i>vert open hacky, frac</i> <i>irr break across core</i>	<i>moist.</i>		<i>Drill 5.0</i> <i>Rec 5.1</i> <i>Left 0.0</i> <i>Lost 0.0</i>
			<i>open B/p; SL stained</i> <i>SL core spin</i>	<i>100</i>	<i>Box 3</i>	
<i>34</i>						
			<i>open B/p</i>			
<i>35</i>						
			<i>Core broken, open B/p; SL (w)</i>			
			<i>open B/p</i>			
<i>36</i>						
			<i>(w) irr. break across core</i> <i>shaley, washed, SL broken;</i> <i>in 0.06 ft thick B/p pieces</i>			
			<i>open B/p</i>			
<i>37</i>			<i>mud, ls frags; soft, sand;</i> <i>0.15 ft core loss in mud seam</i> <i>break across core, SL br</i> <i>irr HA hacky frac across</i> <i>irr. horiz break</i> <i>core spin</i> <i>stained &amp; (w) below 37.5</i> <i>SL irr. stained</i> <i>break across core</i>	<i>shaley (w)</i> <i>(w)</i>		<i>Drill 5.0</i> <i>Rec 4.85</i> <i>Left 0.0</i> <i>Lost 0.15</i>
<i>38</i>						
<i>39</i>				<i>96.9</i>		
<i>40.0</i>						

DRILLING LOG		DIVISION		INSTALLATION		Hole No. <u>WP-124</u>	
1. PROJECT <u>PATOKA LAKE</u>		10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		SHEET <u>5</u> OF 5 SHEETS	
2. LOCATION (Coordinates or Station)		12. MANUFACTURER'S DESIGNATION OF DRILL		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	
3. DRILLING AGENCY		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		UNDISTURBED	
4. HOLE NO. (As shown on drawing title and file number)		16. DATE HOLE		STARTED		COMPLETED	
5. NAME OF DRILLER		17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		3	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		19. SIGNATURE OF INSPECTOR					
7. THICKNESS OF OVERBURDEN							
8. DEPTH DRILLED INTO ROCK							
9. TOTAL DEPTH OF HOLE							
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
	40.0		core spin, stained & (W) stygolite				
			un (W) below 40.2				
41							
42			break to fit box		Box 3	Run # 9 Drill 5.0 Rec 4.65 Lost 0.15 Lost 0.2	
43			irr surface w/ sand	95.7			
			0.2 ft ± core loss				
			LS frags, some redrilled				
			shale zone				
44			irr open sp on shale zone				
			sl irr contact				
45		SA	DK grey; fass, calc. mod soft mod hd. thm bd				
			core spin				
			1/4 break w/ clay & small sticks				
			core spin				
46			lost 0.15 ft in hole		Box 4	96.1	
			Bottom of Hole 46.25				
47							
48							
49							
50							

Hole No. PZ 40

[illegible]

DRILLING LOG		DIVISION	INSTALLATION	Hole No. <span style="float: right;">26-269</span>	SHEET OF SHEETS	
1. PROJECT			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN			
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE			
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
545.35	11		Start Coring 10:05 Reduced Drill lost 10:05 Drill washed Drill lost Drill lost	88 2/3		Run #1 Drill 5.0 Loss 4.4 Left 0.6 Lost 0.6
	2		LA 100% cement water washed Drill lost Drill lost Drill lost			
	13		LA 100% cement, 5 ft. and 8 ft. Drill lost Drill lost Drill lost			
	25		LA 100% cement, 5 ft. and 8 ft. water washed, drill lost Drill lost (W) Drill lost Drill lost		Box 1	
	4		Drill lost Drill lost Drill lost			
	15		Drill lost Drill lost Drill lost Drill lost Drill lost			
	16		Drill lost Drill lost Drill lost Drill lost Drill lost			
	17		Drill lost Drill lost Drill lost Drill lost Drill lost	77.6		Run #2 Drill 5.0 Loss 2.8 Left 2.2 Lost 1.1
	18		Drill lost Drill lost Drill lost Drill lost Drill lost			
	19		Drill lost Drill lost Drill lost Drill lost Drill lost			

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
1. PROJECT		2. LOCATION (Coordinates or Station)		3. DRILLING AGENCY		4. HOLE NO. (As shown on drawing title and file number)	
5. NAME OF DRILLER		6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF HOLE		10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		12. MANUFACTURER'S DESIGNATION OF DRILL	
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		16. DATE HOLE	
17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR		20. SIGNATURE OF DRILLER	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
535.25	0.0		clay staining			DD 20.65	25.35 EL 530.65
	1.0		sh. frags. 2-500			Run #3	
	2.0		sh. grey, m. ca. w/ 200, soft, water washed			Drill 5.0	
	3.0		sh. grey, m. ca. w/ 200, soft, water washed			Rec 4.8	
	4.0		sh. grey, m. ca. w/ 200, soft, water washed			Left 0.3	
	5.0		sh. grey, m. ca. w/ 200, soft, water washed			Lost 0.0	
533.75	6.0		sh. grey, m. ca. w/ 200, soft, water washed				
	7.0		sh. grey, m. ca. w/ 200, soft, water washed				
	8.0		sh. grey, m. ca. w/ 200, soft, water washed				
	9.0		sh. grey, m. ca. w/ 200, soft, water washed				
	10.0		sh. grey, m. ca. w/ 200, soft, water washed				
	11.0		sh. grey, m. ca. w/ 200, soft, water washed				
	12.0		sh. grey, m. ca. w/ 200, soft, water washed				
	13.0		sh. grey, m. ca. w/ 200, soft, water washed				
	14.0		sh. grey, m. ca. w/ 200, soft, water washed				
	15.0		sh. grey, m. ca. w/ 200, soft, water washed				
	16.0		sh. grey, m. ca. w/ 200, soft, water washed				
	17.0		sh. grey, m. ca. w/ 200, soft, water washed				
	18.0		sh. grey, m. ca. w/ 200, soft, water washed				
	19.0		sh. grey, m. ca. w/ 200, soft, water washed				
	20.0		sh. grey, m. ca. w/ 200, soft, water washed				
	21.0		sh. grey, m. ca. w/ 200, soft, water washed				
	22.0		sh. grey, m. ca. w/ 200, soft, water washed				
	23.0		sh. grey, m. ca. w/ 200, soft, water washed				
	24.0		sh. grey, m. ca. w/ 200, soft, water washed				
	25.0		sh. grey, m. ca. w/ 200, soft, water washed				
	26.0		sh. grey, m. ca. w/ 200, soft, water washed				
	27.0		sh. grey, m. ca. w/ 200, soft, water washed				
	28.0		sh. grey, m. ca. w/ 200, soft, water washed				
	29.0		sh. grey, m. ca. w/ 200, soft, water washed				
	30.0		sh. grey, m. ca. w/ 200, soft, water washed				
	31.0		sh. grey, m. ca. w/ 200, soft, water washed				
	32.0		sh. grey, m. ca. w/ 200, soft, water washed				
	33.0		sh. grey, m. ca. w/ 200, soft, water washed				
	34.0		sh. grey, m. ca. w/ 200, soft, water washed				
	35.0		sh. grey, m. ca. w/ 200, soft, water washed				
	36.0		sh. grey, m. ca. w/ 200, soft, water washed				
	37.0		sh. grey, m. ca. w/ 200, soft, water washed				
	38.0		sh. grey, m. ca. w/ 200, soft, water washed				
	39.0		sh. grey, m. ca. w/ 200, soft, water washed				
	40.0		sh. grey, m. ca. w/ 200, soft, water washed				
	41.0		sh. grey, m. ca. w/ 200, soft, water washed				
	42.0		sh. grey, m. ca. w/ 200, soft, water washed				
	43.0		sh. grey, m. ca. w/ 200, soft, water washed				
	44.0		sh. grey, m. ca. w/ 200, soft, water washed				
	45.0		sh. grey, m. ca. w/ 200, soft, water washed				
	46.0		sh. grey, m. ca. w/ 200, soft, water washed				
	47.0		sh. grey, m. ca. w/ 200, soft, water washed				
	48.0		sh. grey, m. ca. w/ 200, soft, water washed				
	49.0		sh. grey, m. ca. w/ 200, soft, water washed				
	50.0		sh. grey, m. ca. w/ 200, soft, water washed				
	51.0		sh. grey, m. ca. w/ 200, soft, water washed				
	52.0		sh. grey, m. ca. w/ 200, soft, water washed				
	53.0		sh. grey, m. ca. w/ 200, soft, water washed				
	54.0		sh. grey, m. ca. w/ 200, soft, water washed				
	55.0		sh. grey, m. ca. w/ 200, soft, water washed				
	56.0		sh. grey, m. ca. w/ 200, soft, water washed				
	57.0		sh. grey, m. ca. w/ 200, soft, water washed				
	58.0		sh. grey, m. ca. w/ 200, soft, water washed				
	59.0		sh. grey, m. ca. w/ 200, soft, water washed				
	60.0		sh. grey, m. ca. w/ 200, soft, water washed				
	61.0		sh. grey, m. ca. w/ 200, soft, water washed				
	62.0		sh. grey, m. ca. w/ 200, soft, water washed				
	63.0		sh. grey, m. ca. w/ 200, soft, water washed				
	64.0		sh. grey, m. ca. w/ 200, soft, water washed				
	65.0		sh. grey, m. ca. w/ 200, soft, water washed				
	66.0		sh. grey, m. ca. w/ 200, soft, water washed				
	67.0		sh. grey, m. ca. w/ 200, soft, water washed				
	68.0		sh. grey, m. ca. w/ 200, soft, water washed				
	69.0		sh. grey, m. ca. w/ 200, soft, water washed				
	70.0		sh. grey, m. ca. w/ 200, soft, water washed				
	71.0		sh. grey, m. ca. w/ 200, soft, water washed				
	72.0		sh. grey, m. ca. w/ 200, soft, water washed				
	73.0		sh. grey, m. ca. w/ 200, soft, water washed				
	74.0		sh. grey, m. ca. w/ 200, soft, water washed				
	75.0		sh. grey, m. ca. w/ 200, soft, water washed				
	76.0		sh. grey, m. ca. w/ 200, soft, water washed				
	77.0		sh. grey, m. ca. w/ 200, soft, water washed				
	78.0		sh. grey, m. ca. w/ 200, soft, water washed				
	79.0		sh. grey, m. ca. w/ 200, soft, water washed				
	80.0		sh. grey, m. ca. w/ 200, soft, water washed				
	81.0		sh. grey, m. ca. w/ 200, soft, water washed				
	82.0		sh. grey, m. ca. w/ 200, soft, water washed				
	83.0		sh. grey, m. ca. w/ 200, soft, water washed				
	84.0		sh. grey, m. ca. w/ 200, soft, water washed				
	85.0		sh. grey, m. ca. w/ 200, soft, water washed				
	86.0		sh. grey, m. ca. w/ 200, soft, water washed				
	87.0		sh. grey, m. ca. w/ 200, soft, water washed				
	88.0		sh. grey, m. ca. w/ 200, soft, water washed				
	89.0		sh. grey, m. ca. w/ 200, soft, water washed				
	90.0		sh. grey, m. ca. w/ 200, soft, water washed				
	91.0		sh. grey, m. ca. w/ 200, soft, water washed				
	92.0		sh. grey, m. ca. w/ 200, soft, water washed				
	93.0		sh. grey, m. ca. w/ 200, soft, water washed				
	94.0		sh. grey, m. ca. w/ 200, soft, water washed				
	95.0		sh. grey, m. ca. w/ 200, soft, water washed				
	96.0		sh. grey, m. ca. w/ 200, soft, water washed				
	97.0		sh. grey, m. ca. w/ 200, soft, water washed				
	98.0		sh. grey, m. ca. w/ 200, soft, water washed				
	99.0		sh. grey, m. ca. w/ 200, soft, water washed				
	100.0		sh. grey, m. ca. w/ 200, soft, water washed				











DRILLING LOG		DIVISION		INSTALLATION		Hole No.		SHEET OF SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT					
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)					
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL					
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED		UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE		STARTED		COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE					
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING					
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR					
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)			
			open dip			Run # 9			
			open dip			Drill 12.0			
			SH grey; med soft; silty; thin cd; acc ss Lam @ top; 1.5' ss; shales cl. on exposure.			Rec 10.3			
			open dip			Lost 0.1			
			Little marks 70.4 - 70.75			Lost 0.0			
72			open dip	100%	7.7				
			open dip		424.3				
			open dip						
73			open dip						
			open dip						
			soft broken core						
74			run open dips 73.3 - 75.4		Box 5				
			open dip						
75			open dip						
			open dip						
			open dip						
76			LS zone			EL-771			
			0.15' to 2' core loss dist 76.2 - 77.75			76.2			
77			LS zone			Run # 10			
			core reduced 76.9 - 77.25			Drill 12.0			
			LS zone			Rec 9.85			
78.75			1.5' med. w/num LS seams 78.3 - 79.75			Lost 0.0			
			SS at contact			Lost 0.0			
78			LS						
			Spec. 17-18 loss, measure-ment of shaley imp. at 78.4						
79			open dip	98.5					
			open dip, shaley zone						
			open dip in shaley seam						

DRILLING LOG		DIVISION	INSTALLATION	SHEET OF SHEETS
1. PROJECT		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number)		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVER- Y e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
21			Thin 2ndary clay zone		Box 5	
22			open 3/4 on shaley seam			
23			open 2 1/2			
24			open 3/4			
25			open 2 1/2			
26			open 3/4			
27			V. shaley 26.2-23.9			
28						
29						
30						
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35						
36						
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100						

DRILLING LOG		DIVISION	INSTALLATION	HOLE NO.		SHEET OF SHEETS
1. PROJECT			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		STARTED    COMPLETED	
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	71		break along 3/2 when drilling in box			Don F. 11
	72		open 3/2	100%		Drill 7.9
			open 3/2		Box 5	Rec 7.25
	73					Let 7 3.15
						Let 7 0.0
	74		shale seam, craters			
			shale zone, craters			
	75					
			open 2/p			
	76					CO 95.2
	77		close back 2/p on shaley seam			95.25
			open 2/p on shaley seam			EL 959.25
	78					
			open 2/p		79.6	
			open 2/p		100.4	

DRILLING LOG		DIVISION		INSTALLATION		SHEET 11 OF 11 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DAY OF YEAR FOR ELEVATION SHOWN (YEN or MSZ)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) 02-40				13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
101			gneiss along shaley sytolite	100%		Run # 12 Drill 10.1 Rec 10.3 Lost 0.2 Lost 0.0	
102			sytolite				
103			sytolite, shaley w/ v. small shells on shale				
104			sytolite		Box 7		
105			sytolite				
106			sytolite				
107			broken when removing thin bed			CORDED 106.3 EL 449.7	
108						Run # 13 Drill 3.5 Rec 3.1 Lost 0.3 Lost 0.1	
109			open 1/2 in shaley zone	9.2			
110			v. shaley				
111			in open 3/4				
112			core badly broken zone - 0.1 ft core loss				
113			lost 0.3 ft in hole			CO 109.5 10 109.8	



Hole No. **P2-41**

DRILLING LOG		DIVISION		INSTALLATION		SHEET 2 OF 9 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED      UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE      STARTED      COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	



DRILLING LOG			DIVISION	INSTALLATION	Hole No. <u>12-41</u>	SHEET OF 7 SHEETS
1. PROJECT				10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)				11. DAYUM FOR ELEVATION SHOWN (YSM or HSL)		
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING		
				19. SIGNATURE OF INSPECTOR		
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	42					
	43	SS	At 42 ft. to 43 ft. Dye lost to trouble w/INTRO slightly soft.	1.5%		
	44					
	45					
515.1	46		SL (w) Lost circulation between 46 and 47.			
	47					
	48	LS	Caliche Gray. Hd. clay. Some massive but a few sh. laminae			
	49					
	50					
	51					
	52					
	53					
	54					
	55					
	56					
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	98					
	99					
	100					

DRILLING LOG		DIVISION		INSTALLATION		SHEET OF 7 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM = MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
51.75	51		Shale				
51.75	52			93%			
51.75	53						
51.75	54						
51.75	55		Grayish-green, nodular f. soft, floppy			Saved 2.0 Sec 9.25 Loss 1.75	
51.75	56						
51.75	57		fine of flintless				
51.75	58						
51.75	59						
51.75	60		fine of flintless				
51.75	61						
51.75	62		fine of flintless				
51.75	63						
51.75	64		fine of flintless				
51.75	65						
51.75	66		fine of flintless				
51.75	67						
51.75	68		fine of flintless				
51.75	69						
51.75	70		fine of flintless				
51.75	71						
51.75	72		fine of flintless				
51.75	73						
51.75	74		fine of flintless				
51.75	75						
51.75	76		fine of flintless				
51.75	77						
51.75	78		fine of flintless				
51.75	79						
51.75	80		fine of flintless				
51.75	81						
51.75	82		fine of flintless				
51.75	83						
51.75	84		fine of flintless				
51.75	85						
51.75	86		fine of flintless				
51.75	87						
51.75	88		fine of flintless				
51.75	89						
51.75	90		fine of flintless				
51.75	91						
51.75	92		fine of flintless				
51.75	93						
51.75	94		fine of flintless				
51.75	95						
51.75	96		fine of flintless				
51.75	97						
51.75	98		fine of flintless				
51.75	99						
51.75	100		fine of flintless				

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PATOKA LAKE FOUNDATION REPORT BOOK 4 APPENDIX D  
CONTRACTOR DRILL LOGS(U) ARMY ENGINEER DISTRICT  
LOUISVILLE KY S BARTLETT ET AL. APR 83

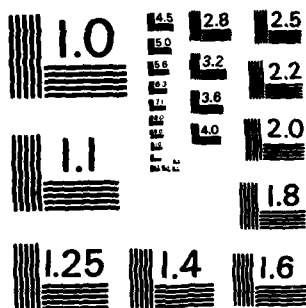
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MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A

DRILLING LOG			DIVISION		INSTALLATION		Hole No.		SHEET OF 9 SHEETS		
1. PROJECT					10. SIZE AND TYPE OF BIT						
2. LOCATION (Coordinate or Station)					11. DATUM FOR ELEVATION SHOWN (TBM or MSL)						
3. DRILLING AGENCY					12. MANUFACTURER'S DESIGNATION OF DRILL						
4. HOLE NO. (As shown on drawing title and site number) <i>PZ-41</i>					13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED		UNDISTURBED		
5. NAME OF DRILLER					14. TOTAL NUMBER CORE BOXES						
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.					15. ELEVATION GROUND WATER		16. DATE HOLE STARTED <i>5-27-77</i> COMPLETED <i>5-27-77</i>				
7. THICKNESS OF OVERBURDEN					17. ELEVATION TOP OF HOLE <i>5441</i>						
8. DEPTH DRILLED INTO ROCK					18. TOTAL CORE RECOVERY FOR BORING						
9. TOTAL DEPTH OF HOLE					19. SIGNATURE OF INSPECTOR						
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV- ERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)					
61											
62											
63			<i>10' Core Loss Zone</i>								
64		<i>SH</i>			<i>802</i>						
65						<i>Run #4</i>					
66						<i>Cored 13.0'</i> <i>Recd 8.0'</i> <i>Loss 2.0'</i>					
67			<i>Choc. B.M. Sh Flap</i>								
68											
69											
70			<i>Grayish - Green, w/ 10' Leaky bed shaly</i>		<i>832</i>						
71											
72											
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DRILLING LOG		DIVISION	INSTALLATION	Hole No. _____		
				SHEET OF 9 SHEETS		
1. PROJECT			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinate or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>10-4</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED <input type="checkbox"/> UNDISTURBED <input type="checkbox"/>	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE STARTED <i>5-17</i> COMPLETED			
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE <i>5-1</i>			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR <i>[Signature]</i>			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
70	70	SH	Core loss 1.7. Svy. dk-gry clay w/ 0.1-0.2 soft zones	83%		Run #5  Cored 10.0 Rec 8.3 Loss 1.7
69	69					
68	68					
67	67					
66	66					
65	65					
64	64					
63	63					
62	62					
61	61					
60	60	SH	0.2 Core Loss			







<b>DRILLING LOG</b>		DIVISION		INSTALLATION		Hole No. 1	
1. PROJECT <i>PATOKA LAKE</i>		10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (FSM - 1984)		SHEET 7 OF 9 SHEETS	
2. LOCATION (Coordinates or Station)		12. MANUFACTURER'S DESIGNATION OF DRILL		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	
3. DRILLING AGENCY		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		UNDISTURBED	
4. HOLE NO. (As shown on drawing title and file number)		16. DATE HOLE		STARTED		COMPLETED	
5. NAME OF DRILLER		17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		19. SIGNATURE OF INSPECTOR		20. SIGNATURE OF INSPECTOR		21. SIGNATURE OF INSPECTOR	
7. THICKNESS OF OVERBURDEN		22. SIGNATURE OF INSPECTOR		23. SIGNATURE OF INSPECTOR		24. SIGNATURE OF INSPECTOR	
8. DEPTH DRILLED INTO ROCK		25. SIGNATURE OF INSPECTOR		26. SIGNATURE OF INSPECTOR		27. SIGNATURE OF INSPECTOR	
9. TOTAL DEPTH OF HOLE		28. SIGNATURE OF INSPECTOR		29. SIGNATURE OF INSPECTOR		30. SIGNATURE OF INSPECTOR	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	101		Shaly			
	102		Shaly			
	103	LS	imp. sd. clay, massive bed w/ fine fossil traps			
	104		stygolite			
	105		stygolite			
	106					
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DRILLING LOG		DIVISION		INSTALLATION		Hole No.	
1. PROJECT <i>Patoke Lake</i>				10. SIZE AND TYPE OF BIT <i>2 7/8" Diamond Wireline</i>		SHEET 1 OF 12 SHEETS	
2. LOCATION (Coordinate or Station) <i>Spot 572, 125+35; 49 ft. E.</i>				11. DAY FOR ELEVATION SHOWN (Y-M-D) <i>11/6/77</i>			
3. DRILLING AGENCY <i>Continental Drilling Co.</i>				12. MANUFACTURER'S DESIGNATION OF DRILL <i>B-61 A106.1</i>			
4. HOLE NO. (As shown on drawing title and file number) <i>P2-42</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN <i>0</i>		DISTURBED <i>NONE</i>	
5. NAME OF DRILLER <i>Dwain Cook</i>				14. TOTAL NUMBER CORE BOXES <i>3</i>			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER <i>527.3</i>			
7. THICKNESS OF OVERBURDEN <i>7.0</i>				16. DATE HOLE STARTED <i>26 MAY 77</i> COMPLETED <i>27 May 1977</i>			
8. DEPTH DRILLED INTO ROCK <i>122.7</i>				17. ELEVATION TOP OF HOLE <i>527.5</i>			
9. TOTAL DEPTH OF HOLE <i>131.7</i>				18. TOTAL CORE RECOVERY FOR BORING <i>3</i>			
				19. SIGNATURE OF INSPECTOR <i>John D. [Signature]</i>			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
587.5	0.0						
		OV/B	Overburden	0.0		Run 57.5" rod bit to 7.0 Set 7.0' at 4" pipe. Pulled after bit lost	
595.5	7.0		Top Rock Sandstone s.p. fig. br. to redish br. mod to h.wd. f. bedded, sugary			Run 27 1/2" rod bit to 22.3' Set 19.7' at 2 1/2" casing/diamond shoe, NR	
	19.7					Bottom casing	
	20.0						
	21.0						
	22.0						
565.2			32. co. bedding pm.			start Coring 10:33pm 50 lb pressure	
	23.0				Box No 1		
	24.0						
	25.0			93.7		max core length. 0.7'	
	26.0	S.S.					

Hole No. **PZ-42**

DRILLING LOG		DIVISION	INSTALLATION	SHEET OF 12 SHEETS
1. PROJECT <b>Patoka Lake</b>		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinate or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <b>PZ-42</b>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED <input type="checkbox"/> UNDISTURBED <input type="checkbox"/>
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE		16. STARTED <input type="checkbox"/> COMPLETED <input type="checkbox"/>
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION a	DEPTH 26.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
560.4	27.0	S.S.	open boring pns. redish bk. core hi wd. 20.			cut 5.5 Rec'd 4.5 1.0 10:48 Lost 0.7, M.D. 27.1 Loss 0.3
	28		open boring pns 27.5 to 30.1			D.D. 27.8
	29					lost water after pulling @ 27.1. Never did get water back to end of hole
	30		dkn. gr. size 1/4" matrix lt. gr. - tan becoming sl. wd / cl. co. boring pns.			
	31			99		
	32		hi L frac.			
	33		3 v. frac cl. filling in frac			
	34					
	35		hi. wd. 20 filled 1 clay			
	36	S.S.				

Hole No. *12-42*

DRILLING LOG		DIVISION		INSTALLATION		SHEET <i>3</i> OF <i>12</i> SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DAYON FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE STARTED COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
<i>550.7</i>	<i>36.8</i>	<i>6.5</i>	<i>Sandstone, H. br. v. lg., mod. wd.</i>		<i>Box 1</i>	<i>Cut 10.0 Rec'd 10.0 Gain 0.7 Left 0.6</i>	
<i>550.3</i>	<i>37.2</i>				<i>Box 2</i>	<i>Loss 0.1 G.D. 37.2</i>	
			<i>core bkn.</i>			<i>D.D. 37.8</i>	
	<i>38.0</i>						
	<i>39.0</i>						
	<i>40.0</i>						
	<i>41.0</i>	<i>6.5</i>		<i>94.9</i>			
	<i>42.0</i>						
	<i>43.0</i>						
	<i>44.0</i>		<i>Core loss 0.5'</i> <i>Probably Sand</i>				
	<i>45.0</i>		<i>mult. frac's</i>				
	<i>46.0</i>		<i>cl. filling on bding pns.</i>				

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(TRANSFER PRINT)

PROJECT *D-290* HOLE NO. *P1-42*  
*Patoka Lake*

DRILLING LOG		DIVISION	INSTALLATION		SHEET 4 OF 12 SHEETS	
1. PROJECT			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinate or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE STARTED COMPLETED			
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	76.0					
	47.0		lt. br.-med gr. mod h. thin bd. some x-bedded			Cut 10.0 Gain 0.6 10.6 Rec'd 9.4 1.2 CD. 47.4 Left 7 Loss 0.5 D.D. 47.8
	48					
	48.8		hi. wd. bkn 48.8 to 50.2			
	49					
	50					
	50.7		Cavity Tool drop irregular Contact			
	51		limestone h. gr. fresh. xlym dense massive, sty. Glen Dean ls.			Cut 11.0 Left 1.6 9.4 Rec'd 8.7 Loss .7 Cavity No shale present @ ls contact.
	52					
	53				Box 2	
	54				Box 3	
	55					
	56					

Hole No. *PC-42*

DRILLING LOG		DIVISION		INSTALLATION		SHEET 5 OF 12 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (BM or HBM)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of overburden, etc., if significant)	
528.3	57	Ls				New Hole Set 5' of 4" pipe and 15' of 3 1/2" casing.	
	58		Cavity in replacement hole for hi. stained borings. Cavity reported by Driller (first hole)			C.D. 57.2	
	59		Stylolite			P.D. 58.8	
	60		Stylolite			PZ-42 Abandoned - Lost Bit - Moved 5' East @ Elev. 58.13	
	61		Stylolites			Redrilled in replacement hole to 53.7' and started coring again because of hard drilling in Ls.	
	62		shaly Ls			No cavity encounter on drilling 2nd hole @ 58.1 to 58.9 depth.	
	63		shaly Ls	99.3		cut 8.0' Rec'd 7.6' Cavity 0.4'	
521.3	61					P.D. 65.2	

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PROJECT

*PZ-42*

D-292

HOLE NO.

*DZ-42*26 May 1971  
27 May



DRILLING LOG		DIVISION		INSTALLATION		Hole No. <u>P2-4</u>	
						SHEET <u>7</u> OF 12 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or BM)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES	
5. NAME OF DRILLER				15. ELEVATION GROUND WATER		16. DATE HOLE	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
7. THICKNESS OF OVERBURDEN				19. SIGNATURE OF INSPECTOR			
8. DEPTH DRILLED INTO ROCK							
9. TOTAL DEPTH OF HOLE							
ELEVATION a	DEPTH b 76.0	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
	77.0	LS.	Limestone Transition Zone. Shaly LS.			TOP Hardinsburg SHALE	
	78.0		soft clayey contact SHALE m. h. green silty, brittle core spin				
	79.0	SH.					
	80.0						
	81.0			96.9			
	82.0		SHALE dr. gr. s. to m. h. Indurated.		Box 4 81.9 Box 5	Cut 10.0 Rec'd 9.7 Loss 0.3 Left 0.6'	
	83.0						
	84.0						
502.4	85.0					M.D. 85.1	
	86.0					D.D. 85.7	



DRILLING LOG		DIVISION	INSTALLATION		Hole No. 12-70	
1. PROJECT		10. SIZE AND TYPE OF BIT		SHEET 8		OF 12 SHEETS
2. LOCATION (Coordinates or Station)		11. DAYUM FOR ELEVATION SHOWN (TBM or NSL)				
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL				
4. HOLE NO. (As shown on drawing title and file number)		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED	
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES				
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER				
7. THICKNESS OF OVERBURDEN		16. DATE HOLE		STARTED	COMPLETED	
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE				
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING				
		19. SIGNATURE OF INSPECTOR				
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
87.0						
88.0						
89.0			Maroon shale soft, bkn indurated			
90.0	9.4		Green shale brittle.			
91.0				92.3		
92.0			Sandstone m.h., v. f. g., v. f. bedded, laminated, 1 sh. lam. H. gr.			Cut 10.0 Gain 0.6 10.6 Rec'd 9.9
93.0	5.5					Loss 0.7 Mechanical loss distributed 85.1 to 91.7
94.0						
95.0						
96.0			v. f. bd. hi. L. frac. 95.6 to 96.0 / siltstone filling 1 sh.		Box 5	M.D. 95.4 D.D. 95.7
97.0					Box 6	

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PROJECT

0-295  
Patoka Lake

HOLE NO.

PZ-47

DRILLING LOG		DIVISION		INSTALLATION		FIG. NO. 16-70		SHEET 9 OF 12 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT					
2. LOCATION (Coordinate or Station)				11. DATUM FOR ELEVATION SHOWN (FBN or MSL)					
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL					
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED		UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES					
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE			
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE		STARTED		COMPLETED	
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR			
9. TOTAL DEPTH OF HOLE									
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)			
	97.0	SH.	SHALE dr. gr., s. clayey core is water washed. air slacks readily						
	98.0								
	99.0								
	100.0			100					
	101.0								
	102.0					Cut 10.0 Rec'd 10.0 0.0 loss Left 0.3'			
	103.0								
484.2		LS	Limestone h. lt. gr. Golconda Ls.						
	104.0								
	105.0	LS	Limestone m. h. silty lt. gr., fossilized.						
482.1						M.D. 105.4 D.D. 105.7 Added dyo to hole.			
	106.0								
	107.0								

DRILLING LOG		DIVISION		INSTALLATION		Hole No. <span style="float: right;">112-442</span>	
						SHEET <span style="float: right;">1</span> OF 12 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED      UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		15. DATE HOLE      STARTED      COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
	107	LS.	Golconda m.s., silty, massive lt. gr.				
	108						
	109				Box 6		
	110				Box 7		
	111						
	112						
	113						
	114						
472.0						D.D. 115.5 M.D. 115.5	
	116						
	117						

DRILLING LOG		DIVISION		INSTALLATION		Hole No.	
						SHEET 11 OF 12 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or B.M.)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED    COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	117					
		LS.				
	118		shaly ls.			
			Limestone h. l. gr. massive less silty than above.			
	119					
	120					
			Golconda ls.	100		
	121					
	122					
						Cut 10.0 Rec'd 10.0
	123					
		LS.				
	124					
					Box 7	
	125					
						P.D. 125.7
	126				Box 8	
	127					

DRILLING LOG		DIVISION	INSTALLATION		Hole No. <u>PC-42</u>	
1. PROJECT <u>Patska Lake</u>		10. SIZE AND TYPE OF BIT <u>115L</u>		SHEET <u>12</u> OF <u>12</u> SHEETS		
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or BBL)		12. MANUFACTURER'S DESIGNATION OF DRILL <u>B-61 Mobil</u>		
3. DRILLING AGENCY <u>Commercial Drilling Co</u>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED	
4. HOLE NO. (As shown on drawing title and file number) <u>P2-42</u>		14. TOTAL NUMBER CORE BOXES <u>12</u>		15. ELEVATION GROUND WATER		
5. NAME OF DRILLER		16. DATE HOLE		STARTED <u>26 MAY</u>	COMPLETED <u>27 May 1977</u>	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
7. THICKNESS OF OVERBURDEN <u>7.0</u>		19. SIGNATURE OF INSPECTOR <u>James A. Christian</u>				
8. DEPTH DRILLED INTO ROCK <u>134.7</u>						
9. TOTAL DEPTH OF HOLE <u>131.7</u>						
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	27.0					
	128.0	LS.	Golconda h, lt gr massive			
	122.0					
459.5	130		Gradation contact		Box 8	
		SH	SHALE m.h. dr. gr. in slacks readily			
	131					
455.8						M.D. 131.7
	132					22. 132.0

Completed 27 MAY 1977

Hole No. **PZ-43**

DRILLING LOG		DIVISION <b>ORLCD</b>		INSTALLATION <b>ORLCD</b>		SHEET <b>1</b> OF <b>10</b> SHEETS	
1. PROJECT <b>PZ-43</b>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinate or Station) <b>Spillway Sta 10+00) 540 ft. RT.</b>				11. DAYUM FOR ELEVATION SHOWN (TBM or BBL)			
3. DRILLING AGENCY <b>Contract</b>				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>PZ-43</b>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED <input type="checkbox"/> UNDISTURBED <input type="checkbox"/>	
5. NAME OF DRILLER <b>John J. Sullivan</b>				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		15. DATE HOLE <b>5-8-77</b> STARTED <input type="checkbox"/> COMPLETED <input type="checkbox"/>	
7. THICKNESS OF OVERBURDEN <b>6</b>				17. ELEVATION TOP OF HOLE <b>627.5</b>		18. TOTAL CORE RECOVERY FOR BORING <b>97.1</b> %	
8. DEPTH DRILLED INTO ROCK				19. SIGNATURE OF INSPECTOR <b>UE</b>			
9. TOTAL DEPTH OF HOLE <b>159.0</b>							
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
10	62	T	Rock $5.1 \pm 62.0$ Casing $5.2 \pm 6.10'$			Run #1	
62						Corrected 1.2 20 0.3 Lost 1.2	
63							
64		SS	Gray tan (w), med bed- d. thin med bed interbedded sh. & sand med gray tan clay seams - very soft.	89%			
65			Soft med soft clay seams		6x1		
66							
67			Soft clay seam with core loss 0.6 cm loss				
68							
69							
70			Soft clay seam				

DRILLING LOG		DIVISION <b>ORLCD</b>		INSTALLATION		SHEET <b>2</b> OF <b>13</b> SHEETS	
1. PROJECT <b>Petaka Lake</b>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DAYUM FOR ELEVATION SHOWN (TBM or BSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>P2-43</b>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.				16. DATE HOLE <b>5-28-77</b>		STARTED    COMPLETED	
7. THICKNESS OF OVERBURDEN <b>6'</b>				17. ELEVATION TOP OF HOLE <b>627.5</b>			
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR <b>HES</b>			

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	71.6		Soft clay seams Possible Core Losses 6' Core Loss			
	72					
	73					
	74	SS	gray-tan			Run #1 Cored 11.5' Dec 10.5' Lost 1.2'
	75					
	76		(W) BAN			
			Soft clay seam			
550.5	77	SH	Gray, med. Hd. fleggy			Run #2 627.5'
		LS	Gray, med. & med			
		SH	Gray, med. Hd. fleggy			
		SH	Gray, med			
		SH	Gray fleggy, med. Hd.			
		LS	- clay filled seams 2' Core Loss			
	78					
		LS				

DRILLING LOG		DIVISION		INSTALLATION		Hole No. 1-1		SHEET 5 OF 10 SHEETS	
1. PROJECT <i>Pa Totra Lake</i>				10. SIZE AND TYPE OF BIT					
2. LOCATION (Coordinates or Station)				11. DAYUM FOR ELEVATION (SHOWN IN INCHES)					
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL					
4. HOLE NO. (As shown on drawing title and site number) <i>PZ-45</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED		UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES					
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE <i>STARTED 5-28-77</i> <i>COMPLETED</i>			
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE <i>627.5</i>					
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING					
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR <i>[Signature]</i>					
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)			
81									
82			<i>v. open (w) slycolite</i>						
83		<i>Ls</i>	<i>Gray. Red. Grn (w) calc. &amp; sil. x-bed</i>	<i>92%</i>		<i>Run #2</i> <i>Cored 10.5</i> <i>Loss 10.3</i> <i>Lost 1.2</i>			
84									
85									
86									
87			<i>Grn (w)</i>	<i>100%</i>					
88									
89			<i>(w) S.P.</i>						
90			<i>S.L. (w)</i>						
91			<i>slycolite</i>						



DRILLING LOG		DIVISION	INSTALLATION		Note No.	
					SHEET 4 OF 10 SHEETS	
1. PROJECT <i>Patska Lake</i>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or ASL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and site number) <i>PZ 43</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		STARTED    COMPLETED	
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE <i>3270</i>			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING %			
			19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
92			<i>St. lamine</i>			
93			<i>St. lamine</i>	100%		
94			<i>St. (w)</i>			<i>Run 43</i>
95		<i>Ls</i>	<i>Grn. Md. Massive Bk a/bec Sh. lamine, handg,</i>		<i>Bx 42</i>	<i>Core 12.5 Dec 13.5 10</i>
96						
97			<i>St. (w)</i>			
98			<i>St. lamine</i>	98%		
99			<i>St. (w)</i>		<i>Bx 43</i>	
100			<i>St. lamine</i>			
101			<i>(w) clay lamine</i>			
102			<i>Bk. Sh. lamine</i>			
103			<i>Sh. lamine</i>			

DRILLING LOG		DIVISION	INSTALLATION		Hole No. <i>100-43</i>	SHEET <i>1</i> OF <i>10</i> SHEETS
1. PROJECT <i>Potoka Lake</i>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or BSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>P2-43</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.			16. DATE HOLE <i>5-29-77</i>		STARTED    COMPLETED	
7. THICKNESS OF OVERBURDEN <i>1'</i>			17. ELEVATION TOP OF HOLE <i>622.5</i>		18. TOTAL CORE RECOVERY FOR BORING <i>98%</i>	
8. DEPTH DRILLED INTO ROCK			19. SIGNATURE OF INSPECTOR			
9. TOTAL DEPTH OF HOLE						

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
101						
102			<i>Sh. Laminar</i>			
103						
104		<i>Ls</i>		<i>98%</i>	<i>Bx #3</i>	<i>Run #4</i>
522.5						
105		<i>Sh</i>	<i>Grayish-Green clay Soft to med. Hd</i>			
106						
107						
108					<i>Bx #4</i>	
109				<i>99%</i>		
110			<i>Very Soft to med. Hd V. d Occ. sand &amp; pebbles</i>			

Hole No. PZ-45

DRILLING LOG		DIVISION	INSTALLATION		SHEET 2 OF 10 SHEETS	
1. PROJECT Patoka Lake			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or BSL)			
3. DRILLING AGENCY California State Geologic			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) PZ-45			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER G. H. H. H.			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN 6			16. DATE HOLE STARTED 5-28-77 COMPLETED 5-28-77		17. ELEVATION TOP OF HOLE 627.5	
8. DEPTH DRILLED INTO ROCK			18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE			19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
112				97.8		
113			sh. Nodule			
114		SH	Gray - DK Gray fl. sh.			Run #5
115						Cored 10.0 Rec 8.7 Lost 1.3
116						
117			ch. sh. sh.			
118						
119		SH	Grayish - Green fl. sh. with ls. Gr. sh. thin ls. conc. pyrite inclusions			
120						

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PROJECT

D-1, D-3, D-5

HOLE NO.

DRILLING LOG		DIVISION		INSTALLATION		Hole No. <u>P-42</u>		SHEET OF 10 SHEETS	
1. PROJECT <u>Patoka Lake</u>				10. SIZE AND TYPE OF BIT					
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)					
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL					
4. HOLE NO. (As shown on drawing title and file number) <u>P-42</u>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED		UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES					
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE STARTED <u>5-28-77</u> COMPLETED <u>5-28-77</u>			
7. THICKNESS OF OVERBURDEN <u>6</u>				17. ELEVATION TOP OF HOLE <u>627.5</u>					
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING					
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR <u>KJS</u>					
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)			
121									
122									
123		SS	Gray, shaly, impure mod hd. w/ many sh. lamin. thin bed			Rec 10.6			
124					44				
502.5									
125		SH	DK-Gray, mod hd. flinty			Core 10.0 Rec 10.3 10.3			
126									
127									
128									
129									
130									
131									

DRILLING LOG		DIVISION		INSTALLATION		SHEET 8 OF 10 SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or BSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and site number) <i>PZ-43</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES	
5. NAME OF DRILLER				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE STARTED <i>5-28-77</i> COMPLETED <i>5-27-77</i>		17. ELEVATION TOP OF HOLE <i>627.5'</i>	
7. THICKNESS OF OVERBURDEN <i>1</i>				18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR	
8. DEPTH DRILLED INTO ROCK				9. TOTAL DEPTH OF HOLE			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVER- ERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
<i>496.2</i>	<i>12.4</i>	<i>SH</i>				<i>627.5'</i> <i>151.3</i> <i>496.2</i>	
<i>132</i>			<i>Shaly</i>				
			<i>LS</i>				
<i>133</i>			<i>Shaly</i>				
<i>154</i>							
<i>155</i>						<i>RUN 27</i> <i>End 10. "</i> <i>Rec 10. "</i> <i>0.0</i>	
<i>136</i>			<i>LS Gray bd. clay n, dense w/ occ INTED SH gray laminae</i>				
<i>137</i>							
			<i>Sh</i>				
<i>138</i>							
			<i>Sh</i>				
<i>139</i>			<i>Sh laminae</i>				
<i>140</i>							
			<i>Sh laminae</i>				

Hole No. *P-43*

DRILLING LOG		DIVISION		INSTALLATION		SHEET OF 10 SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and site number) <i>P-43</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN			
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN <i>6</i>				16. DATE HOLE <i>5-2-7</i>			
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE <i>137.1</i>			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
19. SIGNATURE OF INSPECTOR				20. SIGNATURE OF DRILLER			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
141			Sh Laminæ				
142			Sh Laminæ				
143		LS	Shale				
144			Sh Laminæ				
145						<i>#5</i> <i>Rc</i> <i>11.0</i> <i>Rc</i> <i>10.0</i> <i>0.0</i>	
146			Shale				
147			Shale				
148			Sh				
149			Sh				
150			Blk Gray Shale				

Hole No. **PZ-43**

DRILLING LOG		DIVISION		INSTALLATION		SHEET 10 OF 10 SHEETS	
1. PROJECT <b>Patita Lake</b>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DAYUM FOR ELEVATION SHOWN (TBM or BSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <b>PZ-43</b>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES	
5. NAME OF DRILLER				15. ELEVATION GROUND WATER		16. DATE HOLE <b>5-28-77</b>	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				17. ELEVATION TOP OF HOLE <b>1271</b>		18. TOTAL CORE RECOVERY FOR BORING	
7. THICKNESS OF OVERBURDEN <b>6'</b>				19. SIGNATURE OF INSPECTOR		19. SIGNATURE OF INSPECTOR	
8. DEPTH DRILLED INTO ROCK				9. TOTAL DEPTH OF HOLE <b>159.9</b>			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
159							
158							
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DRILLING LOG		DIVISION	INSTALLATION	Hole No. 72	
1. PROJECT		DRU	Lowville, Pa.	SHEET 1 OF 7 SHEETS	
2. LOCATION (Coordinates or Station)		Spillway Sta. 7+00; 900 ft. LF.			
3. DRILLING AGENCY		PA. Dept. of Transp.			
4. HOLE NO. (As shown on drawing title and file number)		22-44			
5. NAME OF DRILLER		Eric S. McClellan			
6. DIRECTION OF HOLE		<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			
7. THICKNESS OF OVERBURDEN		3.0			
8. DEPTH DRILLED INTO ROCK		26.8			
9. TOTAL DEPTH OF HOLE		29.8			
10. SIZE AND TYPE OF BIT		1 1/2" Dia. Double Flute			
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		1986			
12. MANUFACTURER'S DESIGNATION OF DRILL		C-40			
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		DISTURBED		UNDISTURBED	
14. TOTAL NUMBER CORE BOXES		6			
15. ELEVATION GROUND WATER		-			
16. DATE HOLE		STARTED		COMPLETED	
17. ELEVATION TOP OF HOLE		546.75			
18. TOTAL CORE RECOVERY FOR BORING		77%			
19. SIGNATURE OF INSPECTOR		[Signature]			

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, wear loss, depth of weathering, etc., if significant)
a	b	c	d	e	f	g
546.75	3	SS	Start Coring 3.15 Fast Run - Brown, med soft; heavy cemented, white gran. sec. thin soft st. partings; fast a partings			Run #1 Drill 5.15 Rec 4.35 Left 0.2 Lost 0.65
	4		LA closed frac			
			LA open irr frac			
			irr LA frac across core.			
	5		0.25 ft core loss core badly broken, partial missing; some shale	26.8	Box 1	
			irr dip, partial core missing			
	6		0.2 ft core loss core badly broken			
			Zone of heavy thin shale Run 5.45-6.35			
	7		irr LA open dip			
			irr open dip, med soft partings. thin shale & U.S. V. thin med partings			
			0.2 ft core loss core badly broken			
			heavy, cemented sh, shale partings			
			thin med. soft - some LA			DD 8.3
			LA open dip			
	9		irr med 2 breccia core badly broken & cemented	97%		Run #2 Drill 4.45 Rec 5.0 Left 0.2 Lost 0.65
			0.2 ft core loss LA open dip			
			thin shale med. LA heavily			
			thin med. soft			



PROJECT	D-311	HOLE NO
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DRILLING LOG		DIVISION	INSTALLATION		Hole No.		SHEET		
1. PROJECT		2. LOCATION (Coordinates or Station)		3. DRILLING AGENCY		4. HOLE NO. (As shown on drawing title and file number)		5. NAME OF DRILLER	
6. DIRECTION OF HOLE		7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK		9. TOTAL DEPTH OF HOLE		10. SIZE AND TYPE OF BIT	
11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)		12. MANUFACTURER'S DESIGNATION OF DRILL		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
16. DATE HOLE		17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR		20. REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.				
	31.0		1st break along shaley stylolite	100%		Run #6 Drill 5.0 Rec 5.05 Left 0.0 Lost 0.0			
	32.0		2nd break in shaley zone one break is SL(w), ben						
	32.45		SL shaley stylolite 1st break along shaley seam, cuttings		32.45				
	33.0		SL water washed shaley seam			EL 516.6			
	34.0		stylolite stained zone on core edge vert open gt, highly irr, closed to 34.4, open to broken below, stained w/ 2ndary mineralization (calcite, MnO <sub>2</sub> , pyrite?) open to rest 2 ft			Run #7 Drill 5.0 Rec 4.9 Left 0.05 Lost 0.0			
	35.0		irr horiz break stained core edge 35.6-35.7, SL(w), shaley zone	100%	3				
	36.0		irr horiz break irr vert open gt, stained w/ 2ndary mineralization (MnO <sub>2</sub> , pyrite, limonite)						
	37.0		break along shaley stylolite						
	38.0		highly irr stained break along stylolite stained shaley stylolite zone 38.0-38.05 highly stained SL zone, break along shaley stylolite			EL 511.7			
	39.0		horiz break along shaley stylolite irr break along stylolite irr fine (w), stained, 1st spitz irr break along stylolite, core broken drill 2 core loss cutting on recovered shaley 38.65-38.9 irr highly irr, stained, 1st 2ndary pyrite, MnO <sub>2</sub> , pyrite, MnO <sub>2</sub> , limonite irr horiz break to 39.60			EL 511.7			

Hole No. *M-77*

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
1. PROJECT		2. LOCATION (Coordinates or Station)		3. DRILLING AGENCY		4. HOLE NO. (As shown on drawing title and file number)	
5. NAME OF DRILLER		6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF HOLE		10. SIZE AND TYPE OF BIT		11. DAYUM FOR ELEVATION SHOWN (YBM or MSL)		12. MANUFACTURER'S DESIGNATION OF DRILL	
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		16. DATE HOLE	
17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR		20. REMARKS	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
			hard break down water zone			Run #8	
				75.8%		Drill 5.0	
						Rec 4.5	
						Left 0.25	
						Lost 0.2	
507.95	2		1/2 shaley D.F. 2 core loss 1/2 crack w/ core 10m 1/2 Brownish grey, 1/2 yellowish; med soft-sat. Ht, occ shales, LA slick		Box 3	CD 43.0 DD 43.25 EL 507.95	
	3		open 3/2				
	4		SLICK			Run #9	
	5		LA open 3/2			Drill 5.0	
	6		LA SLICK			Rec 5.25	
	7		LA SLICK			Left 2.0	
	8		LA SLICK			Lost 0.0	
	9		cracks LA great across: core 1/2 LA soft break LA SLICK	100%			
	10		1/2 crack				
	11		hard break, 1/2 SL. core gain				
	12		LA break, 1/2 green spin, probably SLICK				
	13		open 3/2		46.7		
	14		Devon grey, yellow 46.7		503.2		
	15		1/2 LA break 1/2 green spin 1/2 green spin 1/2 green spin				
501.85	16		1/2 green spin		Box 4	CD 40.35 EL 501.65	
	17		1/2 green spin				
	18		1/2 green spin				
	19		1/2 green spin				
	20		1/2 green spin				
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	96		1/2 green spin				
	97		1/2 green spin				
	98		1/2 green spin				
	99		1/2 green spin				
	100		1/2 green spin				

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PROJECT

M-77

HOLE NO.

D-314

DRILLING LOG		DIVISION		INSTALLATION		FIGURE NO.		SHEET OF SHEETS	
1. PROJECT <i>Potaka Lake</i>				10. SIZE AND TYPE OF BIT					
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)					
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL					
4. HOLE NO. (As shown on drawing title and file number) <i>2-4</i>				13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		DISTURBED		UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES					
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER					
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED		COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE					
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING					
				19. SIGNATURE OF INSPECTOR					
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)			
			ice cement & rock core, 1 slice	100%		Run # 10 Drill 5.05 Rec 5.05 Left 5.0 Lost 0.0			
	51		slice						
			slice						
			2 opposing slices						
			3 adjacent slices						
	52		slice						
			break across core, cuttings						
	53		broken zone		Box 4	DDFCO 53.0 EL 496.2			
			zone of run slices						
			slice						
	54		core voided & badly broken, possible core loss			Run # 11 Drill 5.05 Rec 4.45 Left 5.1 Lost 0.0			
			ice hackly face across core						
			slice surface w/ cuttings						
			ice hackly face on core edge						
	55		slice, 4M	100%					
			mud well developed slice						
			ice hackly face w/ slicked surface						
	56		broken zone, cuttings, slice on lower surface						
			2 opposing highly ice faces						
			2 slices						
	57		core gain on 1st slice						
			Greenish gray, below 57.2						
			2 slices						
			silty below 57.8			EL 491.55 CA 54.25			
						DDFCO 57.0			
	58		2 slices						
			V. sandy, silty below 57.9						
	492.25		ice 2.10						
			greenish gray, silty, greenish w. ice						
			ice 2.10						

DRILLING LOG		DIVISION		INSTALLATION		Hole No. <u>02.47</u>		SHEET <u>7</u> OF <u>9</u> SHEETS	
1. PROJECT <u>Potomac Lab</u>				10. SIZE AND TYPE OF BIT					
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)					
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL					
4. HOLE NO. (As shown on drawing title and title marked) <u>02.47</u>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED		UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE		STARTED		COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE					
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING					
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR					
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)			
487.5	51		open 3/10 S. vert fine	100%		Run #12 Drill 5.0 Rec 5.05 Left 0.05 Lost 0.0			
	52		open 3/10 S. vert fine near rock edge core broken along lam open 3/10 S. vert fine open 3/10 S.						
	53		cream bevasi core, small slick on top, mod soft mod H <sub>2</sub> O, thin ed, cracks slightly, 52 liney		Box 5	EL 486.6 DD 63.35			
	54		small slick core retained, partial core missing, small slick closed slick						
	55		dist = core loss lost core spin			Run #13 Drill 5.0 Rec 4.85 Left 0.05 Lost 0.15			
	56		open 3/10 S.	97%					
	57		water washed						
	58		open 3/10 S.						
	59		soft clay, 500 m. consolidated SH, possible core loss, lost core spin						
	60		break to 4.7 core cut						
	61		break to 6.7 core cut						
	62		dec. v. thin ss core 5.0 core 5.0			EL 481.6 DD 68.75			
	63		LS zone, H <sub>2</sub> O, lost.						
	64		core 6.0 zone of rem thin LS and						
	65		LS zone core 6.0						
	66		core 6.0						
	67		core 6.0						
	68		core 6.0						
	69		core 6.0						
	70		core 6.0						
	71		core 6.0						
	72		core 6.0						
	73		core 6.0						
	74		core 6.0						
	75		core 6.0						
	76		core 6.0						
	77		core 6.0						
	78		core 6.0						
	79		core 6.0						
	80		core 6.0						
	81		core 6.0						
	82		core 6.0						
	83		core 6.0						
	84		core 6.0						
	85		core 6.0						
	86		core 6.0						
	87		core 6.0						
	88		core 6.0						
	89		core 6.0						
	90		core 6.0						
	91		core 6.0						
	92		core 6.0						
	93		core 6.0						
	94		core 6.0						
	95		core 6.0						
	96		core 6.0						
	97		core 6.0						
	98		core 6.0						
	99		core 6.0						
	100		core 6.0						

DRILLING LOG		DIVISION		INSTALLATION		Hole No. <u>D-317</u>	
1. PROJECT <u>Petroleum Lease</u>		2. LOCATION (Coordinates or Station)		10. SIZE AND TYPE OF BIT		SHEET <u>1</u> OF <u>2</u> SHEETS	
3. DRILLING AGENCY		4. HOLE NO. (As shown on drawing title and file number) <u>D 2 4 4</u>		11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)		12. MANUFACTURER'S DESIGNATION OF DRILL	
5. NAME OF DRILLER		6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES	
7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK		15. ELEVATION GROUND WATER		16. DATE HOLE	
9. TOTAL DEPTH OF HOLE		17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR	
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
79.85			Run #13 27 sec, 414, 455, 461, 467 oil, shaly	100%		Run #13 Drill 4.95 Rec 5.05 Left 0.0 Lost 0.0	
	71		Run #12 MSL core spin on SH zone MSL core spin Close to SH zone SH zone				
	72		Run #11 Shale				
	73						
	74		Run #10 V. shaly below 73.0	100%		Run #14 Drill 5.0 Rec 4.95 Left 0.05 Lost 0.0	
	75		Run #9		Box 5		
	76		Run #8				
	77		Core to 6.5 in rock Core to 6.5 in rock Run #7				
	78		Run #6			EL 97.65 CD DO 78.3	
	79						





DRILLING LOG		DIVISION	INSTALLATION	Hole No. <u>PZ-45</u>	
		<u>REL-CD</u>		SHEET <u>1</u> OF <u>13</u> SHEETS	
1. PROJECT <u>PATOKA LAKE</u>			10. SIZE AND TYPE OF BIT <u>2 1/2" Dia. 1106.1</u>		
2. LOCATION (Coordinates or Station) <u>Spillway STA. 6720; 600 FT. LFT.</u>			11. DATUM FOR ELEVATION SHOWN (FMS or MSL) <u>MSL</u>		
3. DRILLING AGENCY <u>Continental Drilling Co.</u>			12. MANUFACTURER'S DESIGNATION OF DRILL <u>R-61 1106.1</u>		
4. HOLE NO. (As shown on drawing title and file number) <u>PZ-45</u>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN <u>&lt;</u>		UNDISTURBED <u>NONE</u>
5. NAME OF DRILLER <u>B. C. Henderson</u>			14. TOTAL NUMBER CORE BOXES <u>7</u>		15. ELEVATION GROUND WATER <u>531.1</u>
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE STARTED <u>MAY 24-77</u> COMPLETED <u>25 MAY 1977</u>		
7. THICKNESS OF OVERBURDEN <u>3.0'</u>			17. ELEVATION TOP OF HOLE <u>577.6</u>		
8. DEPTH DRILLED INTO ROCK <u>123.3</u>			18. TOTAL CORE RECOVERY FOR BORING <u>92</u>		
9. TOTAL DEPTH OF HOLE <u>126.3'</u>			19. SIGNATURE OF INSPECTOR <u>James A. Plimstone</u>		

ELEVATION <u>577.6</u>	DEPTH <u>0.0</u>	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	0.0					Moved rig on location & set up on 23 May 1977
	1.0		Overburden			
	2.0					
	3.0		Rock			6" roller bit
	4.2		Sandstone yel.-br. s. to m. h. v. f. g. mod. to hi. bed.			
	5.0					
	6.0					Set 6'11" of 4" pipe
	6.8					3" roller bit

24 May 1977

DRILLING LOG			DIVISION	INSTALLATION	Hole No. <u>PZ-45</u> SHEET <u>2</u> OF <u>13</u> SHEETS
1. PROJECT <u>Patoka Lake</u>			10. SIZE AND TYPE OF BIT <u>6" 3" roller</u>		
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) <u>MSL</u>		
3. DRILLING AGENCY <u>Continental Drilling Co.</u>			12. MANUFACTURER'S DESIGNATION OF DRILL <u>B-61 Mobil</u>		
4. HOLE NO. (As shown on drawing title and file number) <u>PZ-45</u>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED UNDISTURBED <u>NONE</u>		
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN <u>3.0</u>			16. DATE HOLE STARTED <u>24 May 1977</u> COMPLETED		
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE <u>577.6</u>		
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING		
19. SIGNATURE OF INSPECTOR					

ELEVATION •	DEPTH D.F.	LEGEND •	CLASSIFICATION OF MATERIALS (Description) •	% CORE RECOV- ERY •	BOX OR SAMPLE NO. •	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) •
10.6						
11.0						
12.6		5.5				3" Roller bit.
13.0						
563.6	14.0					Lost H <sub>2</sub> O in 3" hole @ 13.0' E.L. 564.6 M.D. = 14.0
		5.5				Set 21.7' of 3 3/8" pipe drilled casing in.
						Very soft 17' to 19' sand or mud.

DRILLING LOG		DIVISION	INSTALLATION	Hole No. <u>PZ-4</u>		
			SHEET <u>3</u> OF <u>3</u> SHEETS			
1. PROJECT			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinate or Station)			11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED <input type="checkbox"/> UNDISTURBED <input type="checkbox"/>	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE <input type="checkbox"/> STARTED <input type="checkbox"/> COMPLETED			
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	20.8					Drilled with 3 3/8" casing size from 14.0' to 22.0'
	21.0	SS				Bottom 3 3/8" pipe Started Coring
555.6	22.0	SS	Sandstone s. v. f. g., reddish br to br h. wd. sugary.			No Water Return
	23.0		Loss area. very soft sand or mud No water return.		Box # 1	Cut 4.2 Rec'd 1.8 Loss 2.4'
	24.0					max. core length 0.3'
552.9	25.0		bk. 25.2 to 26.2			
551.4	26.2					M.D. 26.2
551.1	26.5		indicated mud se.			
			Lost area 26.5 to 35.4,			No water Return

Hole No. *112-45*

DRILLING LOG		DIVISION	INSTALLATION	SHEET # <i>4</i> OF <i>13</i> SHEETS
1. PROJECT			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station)			11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL	
4. HOLE NO. (As shown on drawing title and file number)			13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER	
7. THICKNESS OF OVERBURDEN			16. DATE HOLE	
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE	
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING	
			19. SIGNATURE OF INSPECTOR	

ELEVATION a	DEPTH 30.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		<i>S.S</i>	<i>Sandstone s. n. wd. br.</i>			
	<i>31</i>					<i>soft seams throughout run. Loss attributed to sand &amp; clay and voids. Indicated below max core length 2.4'</i>
<i>544.8</i>	<i>32.8</i>					
	<i>33</i>		<i>Indicated void ↑ oversize hole 2 7/8 to 3 3/8" created by drill water washing.</i>		<i>Box No 1</i>	
	<i>34</i>					<i>cut 10.3' Rec'd 2.7' Loss 7.6' Cased to 35.8 Pipe fell in hole 32.8 to 35.8</i>
<i>542.2</i>	<i>35.8</i>					
	<i>36</i>					<i>M.D. 3 1/2'</i>
<i>541.1</i>						
	<i>37</i>		<i>core becoming redish br.</i>			
	<i>38</i>					
			<i>Low Ljt.</i>			
	<i>39</i>					
<i>536.1</i>	<i>39.5</i>		<i>beginning of lost area. Core does not fit. indicated S.S. SC.</i>			
	<i>40.5</i>	<i>S.S</i>				

DRILLING LOG		DIVISION	INSTALLATION	Hole No. <u>PZ-45</u>		SHEET <u>5</u> OF 13 SHEETS
1. PROJECT			10. SIZE AND TYPE OF BIT <u>1 1/8" 2-flute solid</u>			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or BSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE		STARTED COMPLETED	
7. THICKNESS OF OVERBURDEN			17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK			18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE			19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b, d	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	41	5.5				ruin 2 core 1.5' loss getting down to 46.5' caused by dropping inside barrel in dry hole
	42					
	43		Bottom of loss area			
533.9			rdish br.		Box 1	
	44		lt. br. tan.			cut 9.6 Rec'd 5.4 4.2 lett .05 Loss 4.15
	45					Max core length 0.6' Set casing to 43.3 M.D. 4.05
531.0			Sandstone			
			Glen Darrn limestone h. sl. wd. to sol. zo's			
			sl. wd. br.			
			hi sol. vu. zo.		Box No 1	No water return
528.6	49.5		loss area rapid tool advance void			
527.6	50.0					



Hole No. P-325

DRILLING LOG		DIVISION		INSTALLATION		SHEET 1 OF 13 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE		STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR	
9. TOTAL DEPTH OF HOLE							
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
	0.0	LS.	conc. bk.			25 May 1977	
	1.0		sly. pa.			H2O 1000/35361	
	2.0		sh. pa.		Box 2		
514.3	3.0		sly. pa.			Box 10.2	
	4.0		sh. 20.		Box 3	Box 13.2	
	5.0		sh. 20.			Sum 0.5'	
	6.0		sh. 20.			Left. 0.5'	
	7.0		sh. 20.			M.D. 65.8	
	8.0		sh. 20.			D.D. 66.3	
514.0	9.0	LS.	solid contact				
	10.0	SH.	Top of Hardsand (HARDWARE) - m. H. green, silty, brittle.			max core length 0.6'	
	11.0						
	12.0						
	13.0						
	14.0						
	15.0						
	16.0						
	17.0						
	18.0						
	19.0						
	20.0						
	21.0						
	22.0						
	23.0						
	24.0						
	25.0						
	26.0						
	27.0						
	28.0						
	29.0						
	30.0						
	31.0						
	32.0						
	33.0						
	34.0						
	35.0						
	36.0						
	37.0						
	38.0						
	39.0						
	40.0						
	41.0						
	42.0						
	43.0						
	44.0						
	45.0						
	46.0						
	47.0						
	48.0						
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	57.0						
	58.0						
	59.0						
	60.0						
	61.0						
	62.0						
	63.0						
	64.0						
	65.0						
	66.0						
	67.0						
	68.0						
	69.0						
	70.0						

DRILLING LOG		DIVISION		INSTALLATION		Hole No. <i>PZ-45</i>	
1. PROJECT		10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		SHEET <i>2</i> OF <i>2</i> SHEETS	
2. LOCATION (Coordinates or Station)		12. MANUFACTURER'S DESIGNATION OF DRILL		13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
3. DRILLING AGENCY		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		16. DATE HOLE	
4. HOLE NO. (As shown on drawing title and file number)		17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR	
5. NAME OF DRILLER		16. DATE HOLE		STARTED		COMPLETED	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.		7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK		9. TOTAL DEPTH OF HOLE	
ELEVATION •	DEPTH 73.0 •	LEGEND •	CLASSIFICATION OF MATERIALS (Description) •	% CORE RECOV- ERY •	BOX OR SAMPLE NO. •	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) •	
71		SH					
72			SHALE s. dark gr. clayey, sticky				
73			U. S. zone.				
74		SH	SHALE s. maroon, indurated.			Cut 13.0 Rec'd 13.2 Gain 0.2	
75							
76			SHALE d. gr. red silty				
76.2			SHALE d. gr. s. clayey		Box 3	H.D. = 75.6 B.S. reading C.D. = 76.0 2-D. Depth.	
77							
78			becoming maroon.		Box 4		
79			bkn neck.				
80		SH					
80.0							

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MAR 71

PREVIOUS EDITIONS ARE OBSOLETE.  
(TRANSILPENT)

PROJECT

*Potok Loko*

*D-326*

HOLE NO.

*PZ-45*



DRILLING LOG		DIVISION		INSTALLATION		Hole No.	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED    COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
81			SHALE m.h. green			
82						
83		SH	SHALE m.h. 14.50 becoming sandy laminated			loss distributed soft material
84						
85						Cut 10.0 Rec'd 9.6
86		SS	Sandstone lt. gray t.g. + bd. laminated / siltstone.			76.0 9.6    86.3 85.6    85.6 loss = 0.7 Mechanical loss M.D. 86.3 D.D. 86.3
87						
88			sol. pinhole size thr. core			
89			Indurated clay soft loss area			
90		SH	SHALE dr. gr. m.h. air slacks.			

DRILLING LOG		DIVISION		INSTALLATION		SHEET 10 OF 13 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DAYUM FOR ELEVATION SHOWN (TBM or HSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED    COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
	91	SH					
	92						
	93						
	94	SH	LS. SP.		Box 4		
	95				Box 5		Cut 9.9 Rec'd 9.3 Loss 0.6' Mechanical loss soft material
431.9	96	LS	Bottom Hardinsburg St. Top Galena Ls. lt. gr., hard, fresh.				Drill 96.2.
			becoming silty and fossilized.				

DRILLING LOG		DIVISION		INSTALLATION		SHEET 11 OF 12 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DAY OF YEAR FOR ELEVATION SHOWN (FPM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE    STARTED    COMPLETED	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR			

ELEVATION a	DEPTH 100 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		LS.	Limestone silty			
	101					
	102					
	103					
	104					
	105		Galena Ls.			Cut. 10.0 Rec'd 10.0 Loss 0.0
	106					D.D. 106.2
	107					
	108				Box 5	
					Box 6	
	110	LS.				



DRILLING LOG		DIVISION		INSTALLATION		SHEET	
1. PROJECT <i>Patoka Lake</i>		<i>OF - CD</i>				<i>13</i> OF 13 SHEETS	
2. LOCATION (Coordinates or Station)				10. SIZE AND TYPE OF BIT <i>2 7/8" Diamond Wireline</i>			
3. DRILLING AGENCY <i>Continental Drilling Co</i>				11. DATUM FOR ELEVATION SHOWN (TBM or MSL) <i>MSL</i>			
4. HOLE NO. (As shown on drawing title and file number) <i>Picquetta Hole</i>		<i>PZ-45</i>		12. MANUFACTURER'S DESIGNATION OF DRILL <i>M. bel R-61</i>			
5. NAME OF DRILLER <i>Bob Henderson</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				14. TOTAL NUMBER CORE BOXES <i>7</i>			
7. THICKNESS OF OVERBURDEN <i>3.0</i>				15. ELEVATION GROUND WATER <i>531.1</i>			
8. DEPTH DRILLED INTO ROCK <i>123.3</i>				16. DATE HOLE STARTED <i>24 MAY 1977</i> COMPLETED <i>25 May 1977</i>			
9. TOTAL DEPTH OF HOLE <i>126.3</i>				17. ELEVATION TOP OF HOLE <i>577.6</i>			
				18. TOTAL CORE RECOVERY FOR BORING <i>96</i>			
				19. SIGNATURE OF INSPECTOR <i>Leon B. Phutton</i>			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
156.3	121	LS	Bottom limestone Galeosiderite				
	122		SHALE dr. gr. msh. air slacks, silty		Box 6		
	123		SHALE m.h. green.		Box 7		
	124	SH					
	125						
	126						
451.7			Bottom of Hole				
	130						

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.  
(TRANSLUCENT)

PROJECT *Patoka Lake* D-331 HOLE NO. *PZ-45*

Cut 10.1  
Rec'd 10.0  
Left 0.1

DRILLING LOG		DIVISION		INSTALLATION		Hole No. PZ-46	
PROJECT		APL CONSTRUCTION		LOUISVILLE DISTRICT		SHEET 1 OF 11 SHEETS	
1. PROJECT PATON LAKE				10. SIZE AND TYPE OF BIT MX Diamond			
2. LOCATION (Coordinates or Station) See Note PZ-46 Station 6+2.0				11. DAY OF ELEVATION BROWN (TBM or MSL) MSL			
3. DRILLING AGENCY Continental Drilling Co.				12. MANUFACTURER'S DESIGNATION OF DRILL Model D-61			
4. HOLE NO. (As shown on drawing title and file number) PZ-46				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 0	
5. NAME OF DRILLER Jesse S. S. - Bob Henderson				14. TOTAL NUMBER CORE BOXES		UNDISTURBED 0	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER 525.33 21 MAY 77			
7. THICKNESS OF OVERBURDEN 2.0'				16. DATE HOLE STARTED 23 MAY 1977 COMPLETED			
8. DEPTH DRILLED INTO ROCK 42.0				17. ELEVATION TOP OF HOLE 604.2			
9. TOTAL DEPTH OF HOLE 145.0				18. TOTAL CORE RECOVERY FOR BORING %			
				19. SIGNATURE OF INSPECTOR John A. Chustan & HB			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
604.2	0.0		Overburden			Set 10' casing	
			Rock bit 3"			NOTE: Location changed from above changed to grant STA 125+53, 110 FT. RT.	
601.2	3.0		Top Rock				
			Rock bit				
563.7	41.5		S.S. Sandstone lt. br. - lgy. m. n. s. v. fig. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000			M.D 42.1' - 1.6' = 40.5	
			cl. co. bding pri			7:55 AM. Core	
			cl. co. bding		Box No 1	MAY Core length 0.3'	
						Loss attributed to clay seams & locations shown.	

23 MAY 1977

24 MAY 1977

DRILLING LOG		DIVISION		INSTALLATION		Hole No. <u>FD-46</u>	
1. PROJECT <u>PATOKA LAKE</u>		10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		SHEET <u>2</u> OF <u>11</u> SHEETS	
2. LOCATION (Coordinates or Station)		12. MANUFACTURER'S DESIGNATION OF DRILL		13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
3. DRILLING AGENCY		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		16. DATE HOLE	
4. HOLE NO. (As shown on drawing title and file number)		17. ELEVATION TOP OF HOLE <u>604.2</u>		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR	
5. NAME OF DRILLER		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR		20. SIGNATURE OF INSPECTOR	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.		7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK		9. TOTAL DEPTH OF HOLE	
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
538.3	45.7				30X	Cut. 5.5 Rec. 5.1 Loss 0.4 M.D. 45.9	
	47		Fls. G. b. ss. & silt w/ K. bedding				
	48		Fls. G. b. ss. & silt				
	49		Fls. G. b. ss. & silt				
	50	ss	Br. sh. tan fine med Gr. friable thin Bd. w/ Fls. staining & EIK mottling				
	51		Fls. ECU staining				
	52						
	53						
	54	ss	Gr. sh. tan fine med Occ. Fls. hands H. med Gd.			Cored 4.0 Rec. 3.5 Loss 0.5	
	55						





DRILLING LOG			DIVISION		INSTALLATION		Hole No.	
1. PROJECT			2. LOCATION (Coordinates or Station)		3. DRILLING AGENCY		4. HOLE NO. (As shown on drawing title and file number)	
5. NAME OF DRILLER			6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF HOLE			10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		12. MANUFACTURER'S DESIGNATION OF DRILL	
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN			14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		16. DATE HOLE	
17. ELEVATION TOP OF HOLE			18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR		20. REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.			
5322	0	LS						
	1	LS						
	2	LS						
	3	LS						
	4	LS						
	5	LS						
	6	LS						
	7	LS						
	8	LS						
	9	LS						
	10	LS						
	11	LS						
	12	LS						
	13	LS						
	14	LS						
	15	LS						
	16	LS						
	17	LS						
	18	LS						
	19	LS						
	20	LS						
	21	LS						
	22	LS						
	23	LS						
	24	LS						
	25	LS						
	26	LS						
	27	LS						
	28	LS						
	29	LS						
	30	LS						
	31	LS						
	32	LS						
	33	LS						
	34	LS						
	35	LS						
	36	LS						
	37	LS						
	38	LS						
	39	LS						
	40	LS						
	41	LS						
	42	LS						
	43	LS						
	44	LS						
	45	LS						
	46	LS						
	47	LS						
	48	LS						
	49	LS						
	50	LS						
	51	LS						
	52	LS						
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	55	LS						
	56	LS						
	57	LS						
	58	LS						
	59	LS						
	60	LS						
	61	LS						
	62	LS						
	63	LS						
	64	LS						
	65	LS						
	66	LS						
	67	LS						
	68	LS						
	69	LS						
	70	LS						
	71	LS						
	72	LS						
	73	LS						
	74	LS						
	75	LS						
	76	LS						
	77	LS						
	78	LS						
	79	LS						
	80	LS						
	81	LS						
	82	LS						
	83	LS						
	84	LS						
	85	LS						
	86	LS						
	87	LS						
	88	LS						
	89	LS						
	90	LS						
	91	LS						
	92	LS						
	93	LS						
	94	LS						
	95	LS						
	96	LS						
	97	LS						
	98	LS						
	99	LS						
	100	LS						

DRILLING LOG		DIVISION		INSTALLATION		Hole No.	
1. PROJECT		2. LOCATION (Coordinates or Station)		3. DRILLING AGENCY		4. HOLE NO. (As shown on drawing title and file number)	
5. NAME OF DRILLER		6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF HOLE		10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (FSM or MSL)		12. MANUFACTURER'S DESIGNATION OF DRILL	
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		16. DATE HOLE	
17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR		SHEET 3 OF 11 SHEETS	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
	75					Cored 10.0 Rec. 10.0 Loss 0.0	
	73	Sh				Box # 3 Box # 3 from 74.6'	
	72		1. L. (w)				
	71		(w)				
526.6	70		S.F. (w)				
	69	ls	Gray. Hd dense v. lgn w/loc. (w) B.P. med massive sd				
	68						
	67						
	66						
	65						
	64						
	63		(w) 2.5				
522.2	62					Driller reports Core from 62 to 62.9 Lost Circumstantial in Core	
	61		2.9' cavity				
521.2	60						
	59						
	58						
	57						
	56						
	55						
	54						
	53						
	52						
	51						
	50						
	49						
	48						
	47						
	46						
	45						
	44						
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	22						
	21						
	20						
	19						
	18						
	17						
	16						
	15						
	14						
	13						
	12						
	11						
	10						
	9						
	8						
	7						
	6						
	5						
	4						
	3						
	2						
	1						
	0						

DRILLING LOG		DIVISION	INSTALLATION	1010 FORM SHEET OF // SHEETS		
1. PROJECT			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or B.M.)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN			
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE STARTED COMPLETED			
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	85		Sh. lamina			<div style="text-align: right;"> 604.2  461  143.  149.-T.C. </div>
	86	Ls				
	87		Sh. lamina			
	88					
	89		Sh. dk-gray. soft			
515.2	90		0.6' Core Loss			
	91	Sh	Grayish-green fluggy med hd w/ Dec soft zones			
	92					
	93		dk. grayish-green			
	94					
	95					<div style="text-align: right;"> Cored 10.0  Gas 7.4  Lost 1.5 </div>

DRILLING LOG		DIVISION	INSTALLATION	Hole No.		
				SHEET / OF // SHEETS		
1. PROJECT			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED / UNDISTURBED	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		16. STARTED / COMPLETED	
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
95						
96						
97						
98			3' Core Lost - Core lost during removal then ground up in next run.			
99						
100			6' Core Loss			Core - 6.0 to 1.2 lost 5.0
101			mod. to soft clay			
102						
103						
104						



DRILLING LOG		DIVISION	INSTALLATION		Hole No. <span style="float: right;">SHEET 7 OF 11 SHEETS</span>	
1. PROJECT			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <span style="float: right;">P2-45</span>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED <span style="float: right;">UNDISTURBED</span>	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED <span style="float: right;">DEG. FROM VERT.</span>			16. DATE HOLE <span style="float: right;">STARTED <span style="float: right;">COMPLETED</span></span>		17. ELEVATION TOP OF HOLE <span style="float: right;">65-2</span>	
7. THICKNESS OF OVERBURDEN			18. TOTAL CORE RECOVERY FOR BORING <span style="float: right;">%</span>		19. SIGNATURE OF INSPECTOR	
8. DEPTH DRILLED INTO ROCK						
9. TOTAL DEPTH OF HOLE						

ELEVATION <small>a</small>	DEPTH <small>b</small>	LEGEND <small>c</small>	CLASSIFICATION OF MATERIALS (Description) <small>d</small>	% CORE RECOVERY <small>e</small>	BOX OR SAMPLE NO. <small>f</small>	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) <small>g</small>
116				100%		Cor'd #13 Cored 3.1' 10c 3.1' 0.0
117						
118						
118.8						
119			sh. sand			
120			gray, med. clay, coarse white sh. laminar bands	100%		
121						
122						
123						
124						
125						
126						
127						
128						
129						
130						
131						
132						
133						
134						
135						
136						

Hole No. *F*

DRILLING LOG		DIVISION	INSTALLATION		SHEET <i>/C</i> OF <i>11</i> SHEETS	
1. PROJECT			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)			13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		STARTED	COMPLETED
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
125				100%		
126			shaly			
			fossil frag			
127						
128						
129		LS	fine to med. shaly zones			
130						
131						
132						
133						
134						
135						
136			shaly			

DRILLING LOG		DIVISION		INSTALLATION		Hole No. <i>P-342</i>	
1. PROJECT		2. LOCATION (Coordinates or Station)		3. DRILLING AGENCY		4. HOLE NO. (As shown on drawing title and file number) <i>P-342</i>	
5. NAME OF DRILLER		6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF HOLE		10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		12. MANUFACTURER'S DESIGNATION OF DRILL	
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		16. DATE HOLE <i>STARTED</i> <input type="checkbox"/> <i>COMPLETED</i> <input type="checkbox"/>	
17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR		20. SHEET / OF 11 SHEETS	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
125				100%		Run #15	
126						Core 1.5 Fac 1.5 Left in Hole 1.5	
137						Run #16	
138		LS	Gray, hd. & light. Massive S. surface - ch. lamination			P2 - Set from 138 to 140.	
139						Core 2.1 Fac 1.5 from prev run 1.5	
140						Core 2.2 Fac 1.5 2.5	
141		SH	Gray, med. hcl.			Completed P2 - 16 at 1.15 P.M. 5-25-77 HIS	
142							
143							
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DRILLING LOG		DIVISION		INSTALLATION		Hole No.	
1. PROJECT		2. LOCATION (Coordinates or Station)		10. SIZE AND TYPE OF BIT		SHEET OF SHEETS	
6.011 STA 125+53; 108 FRT		11. DAY ON FOR ELEVATION SHOWN (78N = MSL)		12. MANUFACTURER'S DESIGNATION OF DRILL		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
3. DRILLING AGENCY		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		16. DATE HOLE	
4. HOLE NO. (As shown on drawing title and file number)		17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR	
5. NAME OF DRILLER		18. TOTAL CORE RECOVERY FOR BORING		19. SIGNATURE OF INSPECTOR			
6. DIRECTION OF HOLE		19. SIGNATURE OF INSPECTOR					
7. THICKNESS OF OVERBURDEN							
8. DEPTH DRILLED INTO ROCK							
9. TOTAL DEPTH OF HOLE							
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
	5	SS				Rock bit	
	10					No samples	
	15					Started 4:00 PM	
	20					Finished 7:00 PM	
	25					5:27 77	
	30					Dilled for PZ-46A	
	35					Approx 10' W PZ-46	
	40	SS	Gray Tan (W) med- fine to fine to 5-10'			Rock bit	
	45						
	50						
	55						
54.2	60	LS	Dark gray, dense med. to fine grained				
	65						
53.2	70						
	75	SL	Dark gray, dense med. to fine grained				
	80	LS	Dark gray, dense med. to fine grained				
	85						
51.6	90						
	95						
	100						

Hole No. P2-47

<b>DRILLING LOG</b>	DIVISION <u>0112</u>	INSTALLATION <u>Louisville District</u>	SHEET <u>1</u> OF <u>8</u> SHEETS
1. PROJECT <u>1.152</u>		10. SIZE AND TYPE OF BIT <u>1 1/2"</u>	
2. LOCATION (Coordinates or Station) <u>Spillway STA. 17+20; 330 ft LT.</u>		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY <u>Continental Drilling Co.</u>		12. MANUFACTURER'S DESIGNATION OF DRILL	
4. HOLE NO. (As shown on drawing title and file number) <u>P2-47</u>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN <u>1</u> DISTURBED <u>1</u> UNDISTURBED <u>—</u>	
5. NAME OF DRILLER <u>George March - L Richards</u>		14. TOTAL NUMBER CORE BOXES <u>4</u>	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER <u>—</u>	
7. THICKNESS OF OVERBURDEN <u>2.5'</u>		16. DATE HOLE STARTED <u>5-20-77</u> COMPLETED <u>5-21-77</u>	
8. DEPTH DRILLED INTO ROCK <u>24.0</u>		17. ELEVATION TOP OF HOLE <u>582.7</u> <u>582.7</u>	
9. TOTAL DEPTH OF HOLE <u>122.5</u>		18. TOTAL CORE RECOVERY FOR BORING <u>80.6</u> %	
		19. SIGNATURE OF INSPECTOR <u>TR</u>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	0	I	Set of 4 boxes to 5'		582	
			Lost circulation 24-25'			
585.0	54		54.2 started casing			Run #1
588.4		SS				
	55		LTBN, friable to soft thin sd.		6x81	
	56		2.4 core loss			
592.05	57		roller marks			
595.4						
	58		Styolite	70%		
	59		SL(W) R.P.			
			Fossiliferous Styolite			
	60	LS	Gray, Hd. massive sd. w/ see Sh. brown. Styolites			
			Fossiliferous			
	61					
	62		Shaly			
	63					
	64					
	65					
	66					
	67					
	68					
	69					
	70					
	71					
	72					
	73					
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	98					
	99					
	100					

DRILLING LOG		DIVISION		INSTALLATION		SHEET OF 4 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinate or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or ASL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and site number) <b>P2-47</b>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN <b>2.5'</b>				16. DATE HOLE		STARTED <b>5-30-77</b> COMPLETED <b>5-31-77</b>	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE <b>572.7</b>			
9. TOTAL DEPTH OF HOLE <b>126.5'</b>				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR <b>HR</b>			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
63			sh. Laminar	70%	Box 1	Run #1 Run 100 Core 70 Lost 30	
64						Run #2	
65		LS					
66							
67			sh Laminar				
505.2							
68				98%			
69		SH	Grayish-Green, flaggy interbedded soft zones.				
70							
71							
72			DL-Gray to Gray greenish gray flaggy soft.		Box 1		
73							

Hole No. PZ-47

DRILLING LOG		DIVISION <u>ORC</u>	INSTALLATION	SHEET <u>7</u> OF <u>8</u> SHEETS
1. PROJECT <u>Water Lake</u>		10. SIZE AND TYPE OF BIT <u>1 1/2"</u>		
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) <u>MSL</u>		
3. DRILLING AGENCY <u>Continental Drilling</u>		12. MANUFACTURER'S DESIGNATION OF DRILL <u>Model A 61</u>		
4. HOLE NO. (As shown on drawing title and file number) <u>PZ-47</u>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED UNDISTURBED
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN <u>6.5</u>		16. DATE HOLE STARTED <u>5-30-77</u> COMPLETED <u>5-31-77</u>		17. ELEVATION TOP OF HOLE <u>522.7</u>
8. DEPTH DRILLED INTO ROCK		18. TOTAL CORE RECOVERY FOR BORING		
9. TOTAL DEPTH OF HOLE <u>126.5</u>		19. SIGNATURE OF INSPECTOR <u>PH</u>		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
73				98%	512	Run #2 Cored 10.0 Loc 7.8 Lost .2
74			0.2' Core Loss			
75		SH	Gray- dk-Gray. Trace maroon or choc- GRN. flappy soft to med-td.	68%		Run #3 Cored 3.5 Loc 1.7 Lost .8
76			0.8 Core Loss			
77						
78						
79						
80			Maroon- choc- GRN flappy. med-td to soft sh	54%		
81						
82						

DRILLING LOG		DIVISION	INSTALLATION	FIGURE NO. 1		
1. PROJECT		10. SIZE AND TYPE OF BIT		SHEET 1 OF 2 SHEETS		
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)				
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL				
4. HOLE NO. (As shown on drawing title and file number) <span style="float: right;">PZ-47</span>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED	
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES				
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER				
7. THICKNESS OF OVERBURDEN <span style="float: right;">2.5'</span>		16. DATE HOLE		STARTED <span style="float: right;">5-50-77</span>	COMPLETED <span style="float: right;">5-31-77</span>	
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE <span style="float: right;">572.7</span>				
9. TOTAL DEPTH OF HOLE <span style="float: right;">126.3'</span>		18. TOTAL CORE RECOVERY FOR BORING				
19. SIGNATURE OF INSPECTOR		20. SIGNATURE OF DRILLER				
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	1. CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
84						
85						
86						
87						
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89						
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DRILLING LOG		DIVISION		INSTALLATION		Hole No. 1 - 17		SHEET 5 OF 5 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT					
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)					
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL					
4. HOLE NO. (As shown on drawing title and file number) PZ-47				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED		UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE		STARTED 5-30-77		COMPLETED 5-31-77	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE 97.7		18. TOTAL CORE RECOVERY FOR BORING %			
8. DEPTH DRILLED INTO ROCK				19. SIGNATURE OF INSPECTOR		KRS			
9. TOTAL DEPTH OF HOLE 126.5									
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)			
975.1	0								
478.5	94				Bx2				
	95	LS	Gray, Hd. & lym massive red w/occ sh. Lamina	59%		Run # 5			
	96					Cored 10.0 Rec 4.1 5.9			
	97		SH						
	98		SH		Bx3				
	99		SH						
	100								
	101		Bluish - Gray SAND	100%					
	102		Shaly						
	103								

DRILLING LOG		DIVISION	INSTALLATION	Hole No. <i>P-749</i>		SHEET OF <i>8</i> SHEETS
1. PROJECT <i>White Lake</i>		10. SIZE AND TYPE OF BIT <i>NY</i>		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) <i>MSL</i>		
2. LOCATION (Coordinates or Station)		12. MANUFACTURER'S DESIGNATION OF DRILL <i>Mobile R-61</i>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
3. DRILLING AGENCY <i>Continental</i>		14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER		
4. HOLE NO. (As shown on drawing title and file number) <i>P-7-47</i>		16. DATE HOLE STARTED <i>5-30-77</i> COMPLETED <i>5-31-77</i>		17. ELEVATION TOP OF HOLE <i>572.7</i>		
5. NAME OF DRILLER <i>J. Richards</i>		18. TOTAL CORE RECOVERY FOR BORING <i>142</i>		19. SIGNATURE OF INSPECTOR		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK		
9. TOTAL DEPTH OF HOLE <i>126.5</i>		ELEVATION		DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)
		114				Shale
		115			LS	Gray, hd. xlyd. massive Bed w/ fine sh. laminae
		116				Sh
		107				
		106				
		105				
		104				
		103				
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Hole No. 12-77

<b>DRILLING LOG</b>		DIVISION <u>ORCD</u>	INSTALLATION <u>OK-2</u>	SHEET <u>7</u> OF <u>8</u> SHEETS
1. PROJECT <u>Potomac Lake</u>		10. SIZE AND TYPE OF BIT <u>NV</u>		
2. LOCATION (Coordinate or Station)		11. DATUM FOR ELEVATION SHOWN (FSM or MSL) <u>MSL</u>		
3. DRILLING AGENCY <u>Continental Dr. Co</u>		12. MANUFACTURER'S DESIGNATION OF DRILL <u>Mobile R-61</u>		
4. HOLE NO. (As shown on drawing title and file number) <u>PZ-47</u>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN <span style="float: right;">DISTURBED <input type="checkbox"/> UNDISTURBED <input type="checkbox"/></span>		
5. NAME OF DRILLER <u>J. Richards</u>		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE <span style="float: right;">STARTED <u>5-26-77</u> COMPLETED <u>5-31-77</u></span>		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE <u>572.7</u>		
9. TOTAL DEPTH OF HOLE <u>126.5</u>		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR <u>NB</u>		

ELEVATION •	DEPTH •	LEGEND •	CLASSIFICATION OF MATERIALS (Description) •	% CORE RECOV- ERY •	BOX OR SAMPLE NO. •	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) •
113						
114					Ex d	
115				99%		Cored 10.0 Loc 9.9 Left 1
116		LS	Gray blk massive bed w/occ sh. lamina			
117						
118						
119				94%		
120						
121						
122						



DRILLING LOG		DIVISION	INSTALLATION	Hole No.	SHEET OF SHEETS
1. PROJECT			10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)			11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <b>PZ-47</b>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		STARTED COMPLETED
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE <b>572.7</b>		
9. TOTAL DEPTH OF HOLE <b>126.5</b>			18. TOTAL CORE RECOVERY FOR BORING		
			19. SIGNATURE OF INSPECTOR		<b>YR</b>

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
449.1	125	ls				
	124					
	125	sh	Greenish-Grey, Grey flossy, mod bel.	94%		Run #8 Lined 9.8 Rec $\frac{9.3}{.5}$
442.8 446.2	126		0.5' Left in h.c.			
			Total Depth			
	127					
	128					
	129					
	130					
	131					

DRILLING LOG		DIVISION	INSTALLATION	Hole No. <u>P2 42</u>	SHEET <u>1</u> OF <u>11</u> SHEETS	
1. PROJECT <u>Patoka Lake</u>		<u>CDD</u>	<u>Louisville District</u>			
2. LOCATION (Coordinates or Station) <u>Spillway Sta 15+30; 605 ft. RT</u>			10. SIZE AND TYPE OF BIT <u>1 1/2 wing cone</u>			
3. DRILLING AGENCY <u>Continental Drilling Co.</u>			11. DAYUM FOR ELEVATION SHOWN (TBM or MSL) <u>MSL</u>			
4. HOLE NO. (As shown on drawing title and file number) <u>P2 48</u>			12. MANUFACTURER'S DESIGNATION OF DRILL <u>Mobile B-61</u>			
5. NAME OF DRILLER <u>ESSE ROSS</u>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			14. TOTAL NUMBER CORE BOXES <u>7</u>			
7. THICKNESS OF OVERBURDEN <u>8 ft 3</u>			15. ELEVATION GROUND WATER <u>-</u>			
8. DEPTH DRILLED INTO ROCK <u>174.2</u>			16. DATE HOLE STARTED <u>5/28/77</u> COMPLETED <u>5/29/77</u>			
9. TOTAL DEPTH OF HOLE <u>174.2</u>			17. ELEVATION TOP OF HOLE <u>639.0</u>			
			18. TOTAL CORE RECOVERY FOR BORING <u>99.6</u> %			
			19. SIGNATURE OF INSPECTOR <u>J. [Signature]</u>			
ELEVATION a	DEPTH 70.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	71					Rock 6.77 to 74.3
	72					
	73					
	74		Start Coring 74.3			
661.7	75		open B/p w/ SH Lam, core int. LA open B/p on SH Lam, stained heavily stained			Run #1 Drill 10.4 Roc 10.4 Left 0.0 Lost 0.0
	76		open B/p w/ thin SH Lam, stained stained open B/p w/ SH Lam open B/p		Box 1	
	77		open B/p core badly broken	100%		
	78	SS	LT grey - rust brown; mod consolidated, v. fine gr. thin sh. SL (w), occ SH Lam & plant frags			
	79		open B/p several closely v. short airline lines on core edge open B/p			

ENG FORM 1836  
MAR 71

PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT

P2 4 D-352 HOLE NO. 110

Hole No. P2 44

DRILLING LOG		DIVISION	INSTALLATION		SHEET 2 OF 11 SHEETS	
1. PROJECT <i>Patoka Lake</i>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and site number) <i>P2 48</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		STARTED	COMPLETED
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING <i>1</i>			
19. SIGNATURE OF INSPECTOR						
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
31			open B/p			
22					Box 1	
83			LA open B/p w/ discontinuous SH Lam, x bd			
24			open B/p			
			open B/p			
65			Heavily stained 86.7-87.7			DD + CD 84.7 E-554.3
			x bd, Rusty brn, stained	100%		Run #2 Drill 1.6 Rec 1.4 Left 0.2 Lost 0.0
85						CD 86.1 E-554.4
						DD 86.3
27			broken zone w/num plant frags			
			open B/p on plant frags			
			open B/p on plant frags			
			1st open B/p			
88			broken open B/p w/ plant frags			
			open B/p		88.2	
			open B/p		550.5	
			open B/p on thin SH Lam			
			open B/p			
89			V. DK (MN?) stained core			
			open B/p on thin soft SH Lam			
			V. DK (MN?) stained zone			
			LA open B/p w/ SH seam (soft)			
549.5			SH		Box 2	
92.0			SH			

ENG FORM 1836  
MAR 71PREVIOUS EDITIONS ARE OBSOLETE.  
(TRANSFORMED)

PROJECT

Patoka Lake

D-353

HOLE NO.

P2 44

DRILLING LOG		DIVISION		INSTALLATION		Hole No. <i>P2 49</i>	
						SHEET <i>3</i> OF <i>11</i> SHEETS	
1. PROJECT <i>Po To Ka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DAYUM FOR ELEVATION SHOWN (FSM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and site number) <i>P2 48</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH 9a-b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
<i>548.4</i>						<i>Run # 3</i>	
						<i>Drill 10.0</i>	
						<i>Rec 10.2</i>	
						<i>Left 0.0</i>	
						<i>Lost 0.0</i>	
	<i>91</i>	<i>LS</i>	<i>iv break to fit box</i> <i>LT - med grey, Hd, massive,</i> <i>ATHyn, fss, sl shaley in</i> <i>lower portion.</i>				
	<i>92</i>		<i>break to fit box</i>	<i>100%</i>			
			<i>break to fit box</i>				
			<i>STYOLITE</i>				
	<i>93</i>		<i>stained 92.75-94.05</i>				
			<i>LA stained open 8 1/2</i>				
	<i>94</i>		<i>break to fit core box</i>				
			<i>base of staining</i> <i>94.05</i>				
	<i>95</i>						
			<i>&gt; break to fit core box</i>				
	<i>96</i>					<i>DD + CD 96.3 EL 542.7</i>	
	<i>97</i>						
	<i>98</i>						
	<i>99</i>		<i>shaley STYOLITE</i>				
			<i>iv shaley STYOLITE</i>				
	<i>102.0</i>		<i>open 8 1/2 on shaley seam</i>				

Hole No. P2 48

DRILLING LOG		DIVISION		INSTALLATION		SHEET 4 OF 11 SHEETS	
1. PROJECT Pazaha Lake				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinate or Station)				11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and site number) P2 48				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH 100.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVER- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			SL shaley below 99.6				
	101		stygolite			Run #4	
			SL shaley stygolite			Drill 10.0	
	102			100%		Rec 10.0	
			faint stygolite		102.8	Ltr 0.0	
	103		fss w/ RTLS			Lst 0.0	
	104						
			shaley zone, faint stygolite		Box 3		
	105						
	106		over 2 1/2			DDT CD 106.3 26535.7	
	107						
	108		4" gap, shaley zone				
			went down shaley stygolite				
	109		then slip on shaley zone				
			SL iron break on shaley seam				

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PROJECT

Pazaha Lake D-355

HOLE NO.

P2 48

DRILLING LOG		DIVISION	INSTALLATION	SHEET OF 11 SHEETS		
1. PROJECT <i>P.O. # 7-0-0</i>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and Site number) <i>27-8</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN   DISTURBED   UNDISTURBED			
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE MOLE   STARTED   COMPLETED			
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION e	DEPTH f.s.d. g	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVER- Y e	CORE OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			<i>faint stylolite</i>			<i>Run #5</i>
			<i>shale open cracks on shaley seam</i>	<i>100%</i>	<i>Box 3</i>	<i>Drill 10.0 Rec 10.0 Lost 0.0 Total 2.0</i>
			<i>shaley stylolite and shaley zone, dk grey.</i>			
			<i>lvs shale zone, dk grey, v. small vug on core edge</i>			
			<i>LA shaley zone, dk grey</i>			
			<i>shale open B/S on shaley seam</i>			
				<i>6.3</i>		<i>522.7</i>
			<i>shaley zone</i>		<i>Box 4</i>	
			<i>shaley, dk grey, iron edging</i>	<i>75% / 10</i>		
<i>519.35</i>			<i>v. dark brown massive clay ls ss.</i>			
			<i>ls ss clst</i>			

**B336** | HOLE NO.



Hole No. P2 48

DRILLING LOG		DIVISION		INSTALLATION		SHEET 7 OF 11 SHEETS	
1. PROJECT Pataka Lake				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM = ME)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) P2 48				13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			LA slick			Run # 7	
			broken & slicked		130.75	Drill 10.05	
			broken		508.15	Rec 9.6	
	121		partial core missing, open break, small slicks	100%		Left 0.65	
			core spin			Lost 0.0	
	132		LA slicked breaks				
			LA slick surface				
			> LA slicks				
	153		zone of hum calcite KTL filled fracs, tight				
			LA open fracs		Box 5		
505.3			LT greenish grey, silty sandy; thin calc. lam, progressively sandier, mod Hd.				
	134	SH	open B/p				
			open B/p				
	135		v. fine gr ss zone				
			LA open B/p				
			open B/p				
	136		open B/p			CD 135.8 EL 503.2	
502.8		SS	Greenish grey-LT gr, v. fine gr, lam w/ num SH lam, mod Hd.			DD 136.45	
			open B/p				
	137		open B/p				
			irr open B/p			Run # 8	
			LA slick plane			Drill 9.85	
	138		x bd 137.75-138.4			Rec 10.3±	
			LA open B/p	76%		Left 0.0	
			LA open B/p			Lost 0.2±	
			No SH lam 139.0-140.1				
	139						
	142.0						



Hole No. *P-48*

<b>DRILLING LOG</b>		DIVISION _____	INSTALLATION _____	SHEET <i>1</i> OF <i>11</i> SHEETS
1. PROJECT <i>PaToKa Lake</i>		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL		
4. HOLE NO. (As shown on drawing title and file number) <i>P-48</i>		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR		

ELEVATION a	DEPTH 170.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			LA break			
498.35	191	SH	badly broken DM grey, mol soft; calc,		Box 5	
			LA SLICK			
	192		open B/P broken zone, crumbly			
	193		HA hackly frac across core, broken			
			inv vert hackly frac			
	194		badly broken 197.4-195.0 zone of 0.2 ft, core loss			
	195		LA frac		195.0	
			badly broken			
492.7	196		badly broken zone			DDD CD 196.3 EL 492.7
	197	LS	LT grey; foss, x76yn; Hd; massive; shaley in lower portion		Box 6	
	198		open B/P			
	199		V. shaley below 198.25			
	200.0					

DRILLING LOG		DIVISION	INSTALLATION		Hole No. <i>P2 48</i>	SHEET <i>9</i> OF <i>11</i> SHEETS
1. PROJECT <i>Patoka Lake</i>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (FSM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>P2 48</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	151		open B/p, shaley			Run #9
			open B/p, shaley			Drill 10.1
						Rec 10.1
						Left 0.0
						Lost 0.0
	152			100%		
	153		open B/p, shaley		Box 6	
	154		open B/p break around foss.			
	155		open shaley B/p			
			foss on core edge			
			open B/p, shaley			
	156					DDICD 156.4 E: 482.6
	157		Dr grey, shaley zone			Run #10
						Drill 10.0
						Rec 10.0
						Left 0.0
						Lost 0.0
	158					
			Dr grey shaley, foss. zone		158.6 483.4	
	159					

DRILLING LOG		DIVISION		INSTALLATION		Hole No. <i>P2 48</i>		SHEET <i>16</i> OF <i>11</i> SHEETS	
1. PROJECT <i>P2 48 Lake</i>				10. SIZE AND TYPE OF BIT					
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (FSM or MSL)					
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL					
4. HOLE NO. (As shown on drawing title and site number) <i>P2 48</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED		UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES					
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE			
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING			
8. DEPTH DRILLED INTO ROCK				19. SIGNATURE OF INSPECTOR		3			
9. TOTAL DEPTH OF HOLE									
ELEVATION a	DEPTH b <i>169.0</i>	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f <i>7</i>	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g			
			<i>open B/p</i> <i>Dk grey shaley zone</i>						
161									
162									
163									
164									
165			<i>open B/p on shaley zone</i> <i>Dk grey shaley zone</i>						
166						<i>DDT CD 166.4 EL +72.6</i>			
167									
168			<i>shaley</i> <i>open B/p</i>						
169			<i>open B/p</i>						
170									

DRILLING LOG		DIVISION	INSTALLATION	Hole No. <i>P2 48</i>		SHEET <i>11</i> OF <i>11</i> SHEETS
1. PROJECT <i>Patska Lake</i>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and site number) <i>P2 48</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED    UNDISTURBED	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		STARTED    COMPLETED	
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING			
			19. SIGNATURE OF INSPECTOR			

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	70.0					
	71			100%	Box 7	Run # 11 Drill 7.8 Rec 6.4 Left 1.4 Lost 0.0
467.35			HA Hackly frac across core			
			V. shaley			
	72		Lime w/num foss			
			open B/p			
466.2		SH	dk grey; mod soft, foss, calc; mod bd.		72.8	CD 172.8 EL 466.2
	73				466.2	Taped To 172.6 after pulling tools
			Left 1.4 ft in hole			
	74					DO 174.2
			607m of Hole 174.2			
	175					Lost 10 ft Pen. to of 3 inch flush joint casing in hole w/ diamond bit

D-362

Hole No. **P2-49**

<b>DRILLING LOG</b>		<b>DIVISION</b> OPD	<b>INSTALLATION</b> Louisville District	<b>SHEET 1</b> OF 5 SHEETS
1. PROJECT Datura Lake			10. SIZE AND TYPE OF BIT HSS	
2. LOCATION (Coordinates or Station) Spillway Sta. 25+30; 610 FT. RT.			11. DATUM FOR ELEVATION SHOWN (BM or HSL) HSL	
3. DRILLING AGENCY Continental Drilling Co.			12. MANUFACTURER'S DESIGNATION OF DRILL Mobile 8-51	
4. HOLE NO. (As shown on drawing title and file number) P2 49			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED — UNDISTURBED —	
5. NAME OF DRILLER Barnes			14. TOTAL NUMBER CORE BOXES 3	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED — DEG. FROM VERT.			15. ELEVATION GROUND WATER —	
7. THICKNESS OF OVERBURDEN 5.72			16. DATE HOLE STARTED 5/22/77 COMPLETED 5/29/77	
8. DEPTH DRILLED INTO ROCK 99.5			17. ELEVATION TOP OF HOLE 615.2	
9. TOTAL DEPTH OF HOLE 105.2			18. TOTAL CORE RECOVERY FOR BORING 92.1	
			19. SIGNATURE OF INSPECTOR J. D. [Signature]	

ELEVATION a	DEPTH 60.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVER- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
61						
62						
63						
SS1.3 64		SS	Start Coring 63.9 Tan, thin bedded - lam. w/ num. irr. sh. lam. & beds, v. fine grain, mod. cemented; 1/2" in ss, soft in sh, sh. beds (w) to clay, highly (w)			Run #1 Drill 10.2 Rec 10.1 Left 0.1 Lost 0.0
65						
66				100%	Box 1	
67			vert frac on core edge; partial core missing core broken			
68						
69						
70.1						

D-363

DRILLING LOG		DIVISION		INSTALLATION		Hole No. <u>P2 49</u>	
						SHEET <u>2</u> OF <u>5</u> SHEETS	
1. PROJECT <u>Potoka Lake</u>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <u>P2 49</u>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH 70.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
	71		core broken				
			v. small bug on core edge				
	72						
	73		v. poorly cemented ss; brownish tan, num plant frags, Honeycombed on calc zones		Box 1		
	74		core badly broke				EL 541.2 CD 77.0
	75		soft, plant frags, poorly cemented, Honey combed				DD 74.1
	76		MASSIVE SS 74.3-75.1, Hd, well cemented				Run #2 Drill 10.0 Rec 9.55 Left 0.1 Lost 0.35 ±
539.4	76	LS	core v. badly broken, core @ HA 75.8 fms, vert frags, partial core missing 0.35 ft ± core loss				
	77		Highly (w); brn-tan, MN staining; Mod Hd-Hd; st lym, foss.	95.5			
			open B/p, ior				Glen Dean
	77		open B/p				
	78		Shaley zone, water washed open B/p				DWL @ 77.7
			Less (w) below 78.6				
	78		stygolite		78.6 536.6		
	79		stained (w), stygolite				
			stained stygolite		Box 2		

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PROJECT

Potoka Lake

HOLE NO.

P2 49

D-364

Hole No. *P 2 49*

DRILLING LOG		DIVISION		INSTALLATION		SHEET 3 OF 5 SHEETS	
1. PROJECT <i>Petoka Lake</i>				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MLL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>P 2 49</i>				13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES	
5. NAME OF DRILLER				15. ELEVATION GROUND WATER		16. DATE HOLE	
6. DIRECTION OF HOLE. <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
7. THICKNESS OF OVERBURDEN				19. SIGNATURE OF INSPECTOR			
8. DEPTH DRILLED INTO ROCK							
9. TOTAL DEPTH OF HOLE							
ELEVATION •	DEPTH 82.0	LEGEND •	CLASSIFICATION OF MATERIALS (Description) •	% CORE RECOV- ERY •	BOX OR SAMPLE NO. •	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) •	
			(w) w/clay smeared, open break closed irr. nobby frag				
			2 (w) stylolites				
			LA (w), clay smeared break, MN staining				
81							
82							
			LA break to f.t box break to f.t core box				
			break generally un(w) below 84.0				
83							
			irr break on shaley zone				
			core partial missing				
84			core spin stained w/ several small vugs, 83.5-83.7			EL 531.2 CD 89.0	
85			irr sol opening w/num 2ndary calc. to xtls, un(w)				
			SL irr horiz break, small vug irr horiz break to f.t core box				
86			SL irr horiz break to f.t core box w/vug, along fossilifer 2ndary calc. to xtls				
			SL irr break to f.t core box				
			LA SL irr break w/vug on core edge w/2ndary calc. to xtls	100%			
87			irr horiz break				
			dk grey shaley, SL(w) h stained w/num v. small vugs 84.95-86.4				
88			open b/p on shaley zone				
			irr break along (w) shaley zone				
89			LT grey below 86.4				
			SL irr break along shaley stylolite				
90							

*D-365*

Hole No. P2 49

DRILLING LOG		DIVISION		INSTALLATION		SHEET 5 OF 5 SHEETS	
1. PROJECT Patoira Lake				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) P2 49				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
8. DEPTH DRILLED INTO ROCK				19. SIGNATURE OF INSPECTOR		19. SIGNATURE OF INSPECTOR	
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH 100.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			break to fit box				
			break to f.t. core box				
	10		irr LA break on shaley seam		Box 3		
513.6			V. shaley				
	122		highly irr contact Greenish grey; mod Hd, Limy @ Top. 2 slicked surfaces 0.4 ft core loss		122.5 512.7		CD 102.5 EL 512.7
512.7			Left 1.6 ft in hole				
	101						
	104						DD 104.1
			bottom of Hole 104.1				
	105						

D-366

P2 49



DRILLING LOG			DIVISION	INSTALLATION	Hole No. 1211	
					SHEET 4 OF 5 SHEETS	
1. PROJECT <i>Patoka Lake</i>			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM - MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) <i>P2 49</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED <input type="checkbox"/> UNDISTURBED <input type="checkbox"/>	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES		15. ELEVATION GROUND WATER	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE		16. STARTED <input type="checkbox"/> COMPLETED <input type="checkbox"/>	
7. THICKNESS OF OVERBURDEN			17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK			18. TOTAL CORE RECOVERY FOR BORING			
9. TOTAL DEPTH OF HOLE			19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH 90.0 b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			<i>closed stylolite</i>			
	<i>91</i>		<i>sl(w) open irr break along shaley seam</i>			
			<i>irr open break sl(w)</i>			
	<i>92</i>					
			<i>irr break to fir box</i>		<i>93.3</i>	
			<i>highly irr stylolite</i>		<i>521.9</i>	
	<i>94</i>					<i>CD 93.9</i>
						<i>PD 94.1 EL 521.3</i>
	<i>95</i>		<i>break along shaley stylolite</i>			<i>IRN #4</i>
						<i>Drill 10.0</i>
						<i>Rec 8.2</i>
						<i>Left 1.6</i>
						<i>Lost 0.7</i>
	<i>96</i>				<i>Box 3</i>	
			<i>irr break to fir core box</i>			
			<i>shaley zone</i>	<i>95.3</i>		
			<i>irr break across core</i>			
	<i>98</i>					
			<i>shaley zone</i>			
			<i>irr LA break along shaley zone</i>			
	<i>99</i>					

DRILLING LOG		DIVISION	INSTALLATION	Hole No. <i>P2 50</i>	SHEET 1 OF 4 SHEETS	
1. PROJECT <i>Potato Lake</i>		<i>WRD</i>	<i>Louisville District</i>			
2. LOCATION (Coordinates or Station) <i>Spillway STA. 2570; 880 FT. RT</i>			10. SIZE AND TYPE OF BIT <i>M.S. Machine</i>			
3. DRILLING AGENCY <i>Continental Drilling Co.</i>			11. DAYUM FOR ELEVATION SHOWN (TBM or MSL) <i>MSL</i>			
4. HOLE NO. (As shown on drawing title and file number) <i>P2 50</i>			12. MANUFACTURER'S DESIGNATION OF DRILL <i>Mobile 8-61</i>			
5. NAME OF DRILLER <i>Bonsey</i>			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED <i>—</i> UNDISTURBED <i>—</i>			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			14. TOTAL NUMBER CORE BOXES <i>3</i>			
7. THICKNESS OF OVERBURDEN <i>10 ft ±</i>			15. ELEVATION GROUND WATER <i>—</i>			
8. DEPTH DRILLED INTO ROCK <i>76.0</i>			16. DATE HOLE STARTED <i>5/29/77</i> COMPLETED <i>5/30/77</i>			
9. TOTAL DEPTH OF HOLE <i>106.0</i>			17. ELEVATION TOP OF HOLE <i>622.1</i>			
			18. TOTAL CORE RECOVERY FOR BORING <i>91.3</i> %			
			19. SIGNATURE OF INSPECTOR <i>J. Smith</i>			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
						<i>Rock bitt to 72.0</i>
<i>550.1</i>	<i>72</i>		<i>Start Corus 72.0</i> <i>rock bitt marks</i>			
<i>549.05</i>	<i>73</i>		<i>2 LA open GIPS, plant frags</i> <i>Zone of num plant frags</i> <i>LA open GIP</i>			<i>Run #1</i> <i>Drill 10.0</i> <i>Roc 7.2</i> <i>Left 0.0</i> <i>Lost 2.8</i>
<i>547.25</i>	<i>75</i>		<i>1.8 ft ± core loss</i> <i>73.1 - 74.9</i>			
	<i>76</i>	<i>SS</i>	<i>LA smoothed GT; core broken, partial missing</i> <i>&gt; LA smoothed GIPS</i> <i>LT grey-tan, v. fine gr, poorly cemented, soft, (cu), stained</i>			
	<i>77</i>		<i>open GIP</i>			
	<i>78</i>		<i>interfine across core</i>			
	<i>79</i>					
	<i>80</i>		<i>LA - Med angle SH smoothed, int GIP, core broken</i> <i>Core GIP</i>			

DRILLING LOG		DIVISION		INSTALLATION		FIELD NO. <i>P2 50</i>		SHEET 2 OF 4 SHEETS	
1. PROJECT <i>Patoka Lake</i>				10. SIZE AND TYPE OF BIT					
2. LOCATION (Coordinates or Station)				11. DAYUM FOR ELEVATION SHOWN (TBM or NSL)					
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL					
4. HOLE NO. (As shown on drawing title and file number) <i>P2 50</i>				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED		UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES					
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER					
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED		COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE					
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING					
				19. SIGNATURE OF INSPECTOR					

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
541.65	80.0		heavily stained, rust on 1.0 ft core loss			No SH on top of LS
540.65	81		Very highly frac, core badly broken, stained, (w), LT grey			Pulled bottom of Run
	82		irr top of core			DDT CD 82.0 EL 540.1
	83		irr very highly frac, sl stained, v. faint clay, smears, core broken, partial core missing, possible loss			Run #2
			0.15 ft core loss		Box	Drill 4.0
			core spin, core beveled		1	Rec 3.75
			core spin, (w) on thin SH seam, water washed, core beveled			Left 0.1
						Lost 0.15
	84	LS	Tan - LT grey; Hd, xtl, foss, (w); massive, sol. in part.			Glen Dean
	85					
	86		irr break across core			EL 536.2 CD 85.9
						DD 86.0
	87					Run #3
	88		Tan To 89.8	100%		Drill 10.0
						Rec 10.1
	89		irr horiz break across core			Left 0.0
						Lost 2.0
	90					
	91		irr horiz. break in core			
	92		irr LA break, mud smeared, core broken		89.6 532.5	

Hole No. P-250

DRILLING LOG		DIVISION		INSTALLATION		SHEET 3 OF 4 SHEETS	
1. PROJECT				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATE FOR ELEVATION SHOWN (YBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED      UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE		STARTED      COMPLETED	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING			
				19. SIGNATURE OF INSPECTOR			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			base of heavy (w): 87.9				
91			base of (w), 92 ±				
92					Box 2		
			Styolite and shaley zone				
93			break to fit core box				
			num v. thin Styolites Run #3			Hole caving	
94							
95			LA break on shaley zone Styolite				
96						Dotted 96.0 EL 526.1	
			LA v. thin sh Lam.			Run # 4 Dr. LL 10.0 Rec 9.9 Left 0.1 Lost 0.1	
97							
98			DK grey, shaley bd break	100%			
99			shier shaley Styolite				
100.0			shier shaley Styolite zone				

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PROJECT

PaToha Lake D-370

HOLE NO.

P-250

DRILLING LOG		DIVISION		INSTALLATION		Hole No. <u>P2 50</u>	
1. PROJECT		2. LOCATION (Coordinates or Station)		10. SIZE AND TYPE OF BIT		SHEET <u>4</u> OF 4 SHEETS	
3. DRILLING AGENCY		4. HOLE NO. (As shown on drawing title and file number)		11. DAYUM FOR ELEVATION SHOWN (ISN or MSL)		12. MANUFACTURER'S DESIGNATION OF DRILL	
5. NAME OF DRILLER		6. HOLE NO. (As shown on drawing title and file number)		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES	
7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK		15. ELEVATION GROUND WATER		16. DATE HOLE	
9. TOTAL DEPTH OF HOLE		10. DIRECTION OF HOLE		17. ELEVATION TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	
		11. <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		19. SIGNATURE OF INSPECTOR		20. SIGNATURE OF DRILLER	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
	101		shaley zone		Box 2		
	102		shaley seam, v. thin				
	103		break along thin shaley seam				
	104		vert shaley stylolitic zone on core edge				
	105		vert shaley stylolitic zone on core edge				
	106		horiz break, shaley zone				
	107		horiz break, shaley zone				
	108		vert shaley stylolitic zone on core edge				
	109		vert shaley stylolitic zone on core edge				
	110		vert shaley stylolitic zone on core edge				
	111		vert shaley stylolitic zone on core edge				
	112		vert shaley stylolitic zone on core edge				
	113		vert shaley stylolitic zone on core edge				
	114		vert shaley stylolitic zone on core edge				
	115		vert shaley stylolitic zone on core edge				
	116		vert shaley stylolitic zone on core edge				
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	120		vert shaley stylolitic zone on core edge				
	121		vert shaley stylolitic zone on core edge				
	122		vert shaley stylolitic zone on core edge				
	123		vert shaley stylolitic zone on core edge				
	124		vert shaley stylolitic zone on core edge				
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	200		vert shaley stylolitic zone on core edge				

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